Hitchcock's Machine Tool Blue Book

OCTOBER, 1931 TWENTY-SIXTH YEAR

Now... You can own an
AEF-SPOT WELDER
for only
$175.00

OUR
[illegible]
TO [illegible]
[illegible]

ELECTRIC
WELDING
Was Invented In
1886

When are you going to Adopt it?

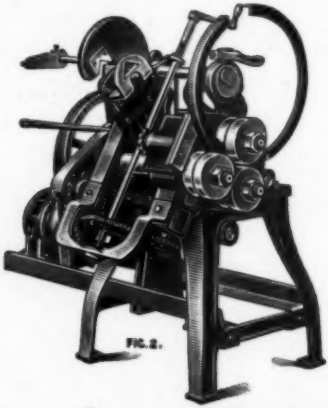
JOINING METALS
(an old art)
Simplified by
ELECTRICITY

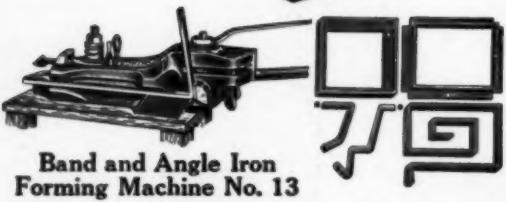
AMERICAN ELECTRIC WELDING CORP.

PUBLISHED AT 508 So. DEARBORN ST. CHICAGO

EXCELSIOR

Circular Angle Bending Machine No. 14





Band and Angle Iron Forming Machine No. 13

Mfgrs. of Shearing and Punching Machines, Automatic Polishing and Buffing Machines.

Excelsior Tool & Machine Co.

East St. Louis, Illinois

Hitchcock's
Machine Tool Blue Book

Selected Circulation — 25,500 Monthly

OCTOBER, 1931 — TWENTY-SIXTH YEAR

Don't Hide Your Light Under a Bushel When Practical Nation-Wide Publicity is so Inexpensive

Direct circulation provides a straight line between the manufacturer and the buyers of metal-working machinery.

To be able to thoroughly cover his trade with a full page advertisement in the "Blue Book" at a cost of less than $1.60 a page per thousand of circulation is a snap for any manufacturer of machine tools or kindred equipment.

The combined effectiveness and economy of "Blue Book" advertising make it an especially attractive investment under present conditions for any manufacturer who believes it good business to keep in contact with those to whom he must look for his present and future sales.

Send in your copy, and let's get going

Published By

Hitchcock Publishing Co.

508 S. Dearborn St., Chicago, Ill.

Consult the Classified Finding Index for your requirements

FOOTBURT

A Single Spindle Footburt Sipp Sensitive Drill

Made in three sizes of single and multiple spindle models

More holes with this machine

Why? Because you can change speeds in two seconds or belts in ten seconds—because the automatic idlers keep the belt pulling to capacity at all times—because the full ball bearing equipment and accurate machining gives a smooth, fast cut.

Write for No. 650 Folders

The Foote-Burt Company, Cleveland, O.

FOOTBURT

Threading at 3000 R. P. M.

These rods are being threaded with a No. 8-32 thread 5-16" long, at an average production of 1400 pieces per hour on our standard High Speed Tapping Machine.

How about your threaded work?

Leland-Gifford Company, - Worcester, Mass., U.S.A.

BRANCHES

BOSTON CHICAGO CLEVELAND
DETROIT NEW YORK
PITTSBURGH ROCHESTER

AGENTS

Hendrie & Bolhoff — Denver
F. E. Satterlee Company — Minneapolis
Smith Booth Usher Co., — Los Angeles
Herberts-Moore Machinery Co., — San Francisco
F. F. Barber Machinery Co. — Toronto

LELAND-GIFFORD

BETTER BUSINESS AHEAD,——— ———IT'S TIME TO GET READY

COMPETITION WILL BE KEENER

LOOK 'EM OVER

It will pay to look over your equipment; chances are you've got machines 8 or 10 years old that are out of date.

OLD MACHINES, OLD METHODS, OLD RESULTS WONT DO

Do it Faster
Do it Better
Do it Cheaper

Avey

CAN HELP YOU

There are a lot of new things in drilling. There are a lot of ways that two holes can be drilled at the former cost of one.

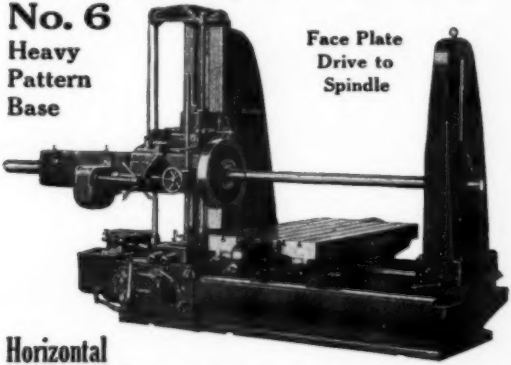
Let us send you our Bulletin "IS YOUR DRILLING DEPARTMENT NEGLECTED" showing latest developments in Drilling Machines, Automatics, Motor Units, Tappers.

TELL US YOUR PROBLEM. ASK FOR INFORMATION.

THE AVEY DRILLING MACHINE CO., CINCINNATI

The New Improved DEFIANCE

No. 6
Heavy Pattern Base



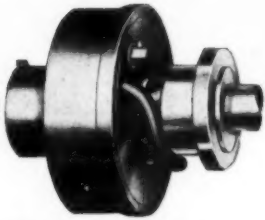
Horizontal
Boring, Milling, Drilling and Tapping Machine

The Defiance Line of Horizontal Boring Mills embodies many special features including independent rapid traverse to head and platen in all directions, moving 84" per minute; thoroughly enclosed head; forced feed lubrication; centralized control; unit construction of head, feed and speed boxes, and many more efficient aids to production. Simplicity, great strength and ample power enable you to handle a wide range of work with profit.

Write for the descriptive folder, or for the complete Catalog of "The Defiance Line" of Cylinder Boring Machines, Heavy Service Drilling Machines. Rail Drills, Horizontal and Vertical Multiple Drilling Machines, Multiple Tapping Machines and Valve Grinding Machines.

The Defiance Machine Works
Defiance, Ohio

Designers and Builders of Precision-Production Machine Tools and Special Woodworking Machinery



THE CONWAY FULL FLOATING EXPANSION CLUTCH

Simple Design

Rugged Construction

Smooth Performance

Interchangeable Parts

Easy Engagement

Instant Release

Drag-free Idling

Fool-Proof

THE CONWAY Expansion Clutch is a splendid control, where starting and stopping must be reliable, where peak loads must be taken care of without slip, where the machine must stop on the touch of the throw-out bar, and where adjustment must be made simply and without trouble. Its powerful, noiseless and smooth performance adds greatly to the functioning of the entire machine.

The Conway Clutch is a complete unit ready to install. Conservative power ratings range from 2½ to 55 H. P. at 100 R. P. M. Steel parts are alloys and hardened and other materials are selected for the service they will give. All parts are accurately interchangeable. The Conway brings to your machine the very best in friction clutch control.

Write Today for a Copy of Bulletin E-8 which describes in detail the CONWAY Expansion Clutch.

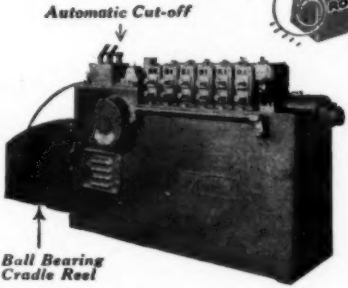
The Conway Clutch Co.

1541 Queen City Ave., Cincinnati, Ohio

also—manufacturers of the splendid Conway Disc Clutch (Cat. P-20)

Still Another Operation Saved by these NEW

McKINNEY ROLL FORMING MACHINES



To the outstanding operating features of McKinney machines there is now added, automatic cutting of material before forming.

Strip material is fed continuously from the McKinney Ball Bearing Reel Cradle—through the automatic Cut-off—and then through the forming rolls.

Shear cutting before forming saves the usual after operations of cutting and re-handling, conserves material and avoids the necessity of smoothing burred ends incident to saw cutting under some conditions.

Write for complete information regarding this improved feature and the McKinney Reel Cradle which may be used with any roll forming machine.

It will Doubtless Pay You to immediately make a thorough study of your product in relation to roll forming.

Send us blueprints or actual parts which may appear to lend themselves to the McKinney advanced method of roll forming.

Facts and figures will be submitted promptly regarding the forming of these particular parts.

The McKinney Tool & Mfg. Co

1684 Arabella Road, Cleveland, Ohio

"The Good Mechanic's Choice"

SINCE 1897

New Tool Grinder!

At last here's a strictly high-grade, ball bearing tool grinder at a price all shops can afford! It bears the famous old U. S. mark—sufficient assurance of rugged construction, accurate and smooth performance, and utmost dependability. Powerful repulsion-induction motor, 3450 r. p. m. Two cup wheels 6x½x1½x1½-inch cup, with ½-inch wall—one for roughing, one for finishing. Tool rests adjustable from 0 to 15-degree angles. Guards adjustable to wheel wear. Overall—10" high, 10" deep, 18" long. Obtainable either in bench or pedestal types for either ordinary or high speed tools. Grinder shown above is for 110 volts, 60 cycle, single phase—furnished for 220 volts on request. Complete details and prices can be had from your distributor, or write us direct.

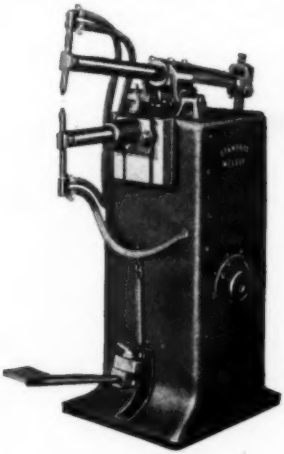
NEW CATALOG—The new, big U. S. Catalog is full of helpful information you will want on portable electric tools, grinders of all types, buffers, polishers, flexible shaft machines, hammers, etc. Ask your distributor for a free copy—or write us.

The United States Electrical Tool Co.

2461 W. Sixth St., Dept. D. Cincinnati, Ohio

Canadian Division—MAPLE LEAF ELECTRIC TOOLS, Ltd.—Toronto

"STANDARD"
A. L. Type Spot Welder



Welders of all kinds for all purposes

Write for prices

The Lenney Machine & Manufacturing Company

Warren, - - - - - Ohio

Manufacturers of Butt — Spot — Seam — and Special Welders

SAFE VALVE COUPLINGS

Quick As Wink

The quickest--safest--most reliable hose couplings and valves on the market

3 YEARS GUARANTEE

Positive control of the air anywhere between the compressor and tool. Push valve sleeve forward--air is on. Pull sleeve back--air is off. Cannot be uncoupled unless air is off. No leaks. No sticking. No trouble. All steel construction. Major parts of "Stainless." Stand abuse and operate under all conditions.

Time and Money savers wherever used. Ask for information and prices.

Quick As Wink

CUSHION ABRASIVE WHEELS

THE MODERN WAY TO BUFF & POLISH

C. B. HUNT & SON

SALEM, OHIO

AUTOMATIC

adjustment of machine to work

PERFECT BALANCE of motor and shaft is achieved in the Kellerflex by mounting the motor on an adjustable sliding bracket in a universal swivel yoke. The machine responds INSTANTLY to the slightest movement of the handpiece. It follows the work—relieves strain on the cable—avoids sharp bends—reduces shaft friction.

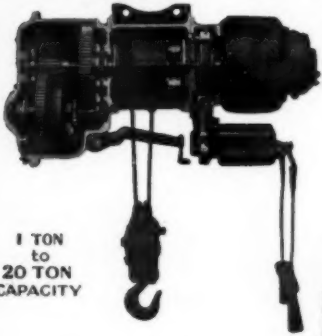
Remember—the Kellerflex is a quality, ball-bearing equipped machine throughout. The motor is full-sized. A wide range of speeds permits use of the right tool at its correct speed with greatest efficiency. Practical experience with actual working conditions is reflected in every detail of its design and workmanship.

Complete stock of Kellerflex Machines, rotary files, grinding wheels and polishers at Chicago and Brooklyn.

KELLER MECHANICAL ENGINEERING CORP.
58A Washington St., Brooklyn, N. Y.

KELLERFLEX

BOX LOAD LIFTER TRADE MARK ELECTRIC HOIST



MOST RUGGED
AND
ECONOMICAL
HOIST BUILT

1 TON
to
20 TON
CAPACITY

ALL STEEL
SUSPENSION
92 %
MECHANICAL
EFFICIENCY

500 lb.
to
2000 lb.
CAPACITY

LOW HEAD ROOM BOX TYPE CRANE

LIFTS ITS LOAD WITHIN 18 IN. OF CEILING

HEAVY DUTY ELECTRIC AND HAND TRAVELING CRANES

MADE IN EVERY SIZE AND TYPE FOR EVERY DUTY

WRITE FOR CATALOG

BOX CRANE & HOIST CORPORATION

2234 EAST ONTARIO ST., PHILADELPHIA, PA.

REPRESENTATIVES IN PRINCIPAL CITIES.

WANTED

A going business manufacturing machinery or small tools.

Prefer small to medium size and weight units selling through machinery dealers.

Address

Responsible Mid-West Manufacturer

c/o Hitchcock Publishing Co.
508 S. Dearborn St., Chicago

Analysis of Circulation of

HITCHCOCK'S MACHINE TOOL BLUE BOOK

By Dun and Bradstreet Ratings

(Corrected to September 1st, 1930)

To domestic concerns, and superintendents, works managers, production engineers, etc., in such concerns rated at—

Exceeding $1,000,000	1,937
$500,000 to $1,000,000	1,486
$300,000 to $ 500,000	1,402
$200,000 to $ 300,000	1,306
$125,000 to $ 200,000	1,892
$ 75,000 to $ 125,000	1,827
$ 50,000 to $ 75,000	1,558
$ 20,000 to $ 50,000	3,190
$ 10,000 to $ 20,000	2,132
$ 5,000 to $ 10,000	1,604
TOTAL to Private Concerns of over $5,000	18,334
Steam and Street Railway Mechanical and Purchasing Officials, Government and Municipal Plants, Technical Schools, Selected Foreign Importers and Users, Etc.	2,990
TOTAL to Buyers of Known Responsibility	21,324
*Concerns quoted in Dun or Bradstreet, but without Capital Rating	2,232
Concerns not yet in either Dun or Bradstreet, which includes new industries	1,424
Concerns rated $3,000 to $5,000	489
Miscellaneous	217
TOTAL CIRCULATION	**25,686**

*This group includes a considerable number of large concerns, and some small ones of high credit, whose capital rating is not given by either of the commercial agencies.

Taylor & Fenn Belt Driven

No. 12 Spring Press

UNIFORM BLOW SPRING PRESSES

Are made in three sizes, with either single or double action

Our No. 12 Belt Driven Spring Press, illustrated above, has a stroke of 3¼ inches. The foot treadle operates a safety clutch attached to the flywheel, which automatically stops the machine after each stroke regardless of whether the treadle is released or held down by the operator. The clutch can be adjusted for a continuous stroke if desired.

Descriptive circular gladly sent upon request

The Taylor & Fenn Co.

Hartford, Conn., U. S. A.

Pedrick Lathe Boring Bars

There are many times when you could profitably use one of your lathes for boring—if you only had the proper appliances at hand.

We can equip you for such work with one of our Lathe Boring Bars. They are made in diameters from 2½" to 6" and various lengths, with a large assortment of cutterheads to meet miscellaneous requirements.

The lathe provides the power, and each bar has a two-change constant feed, hand-controlled or automatic. The bar is rigidly held and is easily taken down and reset without changing the alignment.

Put your boring problems up to us. We have all kinds of new boring machines, from our Standard Portable Cylinder Boring Bar to our new Floor Boring Machines.

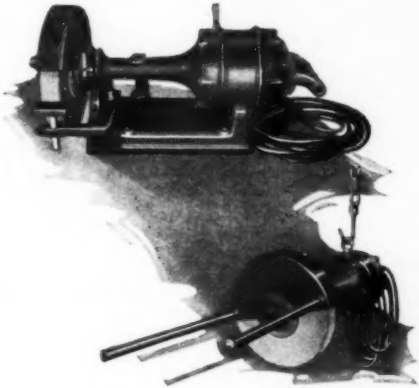
Pedrick Tool & Machine Co.

3644 N. Lawrence St., Philadelphia, Pa.

Builders of Portable Cylinder Boring Bars, Crank Pin Turners, Portable Millers, Pipe Benders, etc.

A Combination GRINDER

WITH A MULTITUDE OF USES --



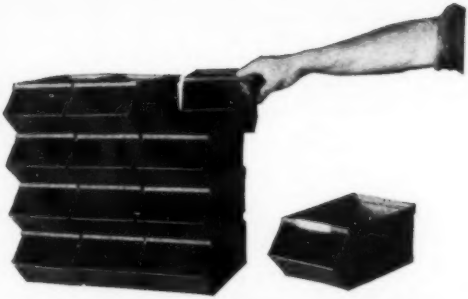
2 H.P., 3 Phase, 220 or 440 volts. 1800 R.P.M. at 60 cycle. 40° C Rise Constant Duty. Nine motor leads are brought out in switch box for ready connection to either 220 or 440 volts. Diameter of spindle at wheel, 1¼". Equipped with 14"x2" grinding wheel. Net weight of Grinder, 167 pounds; 200 crated. Height 15½", Width of base 9½", Width of Guard 15". Net weight of Base, 46 pounds. Shipping weight, boxed 290 lbs., crated, 260 lbs. (Can be furnished in 110 or 220 volt D.C.)

A Sales Representation Is Open in a Few Localities

STOODY COMPANY

MANUFACTURERS

WHITTIER, CALIFORNIA



Cutting the Costs of Space—Time and Lost Motions

STACKBINS...the new and modern method in materials handling...is the answer to increased production and lower cost problems.

Machine shops are using them at the drill, reamer and lathe operations ... Foundries have put them to work handling castings...Assembly departments have adopted them for placing many parts within easy reach of workers...Conveyer systems find them convenient for transporting materials and sub-assemblies to final assembly ... Stockrooms, warehouses, and storage areas of all kinds are putting them to new tasks daily.

Stackbins are made in four standard sizes.
Special sizes can be furnished to meet your requirements.
Send for descriptive circulars today—use the coupon.

STACKBIN CORPORATION

Pearl & Rice Streets, Providence, R. I.

Kindly send descriptive circular and quote prices on Stackbin equipment.

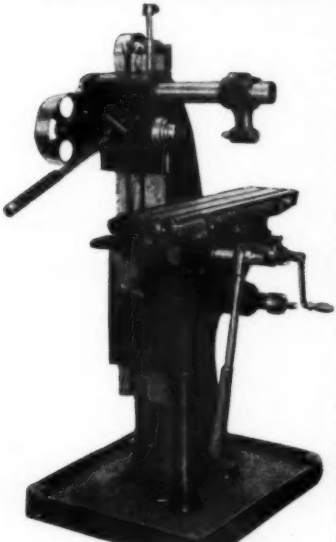
Name .....

Title .....

Firm .....

Address .....

"SUPERIOR"
Hand Milling Machine
No. 1



WAS DESIGNED to meet the demand for a high grade well built machine to cover a great variety of work within the range of a hand miller.

CONSTRUCTION and WORKMANSHIP is of the very best possible. The head and knee are mounted on long narrow ways accurately fitted with adjustable taper gibs which insures rigidity and long life together with perfect alignment and ease of operation. Friction countershaft is built into the machine so it can be run directly from line shaft or from motor.

In a Class by Itself

THE SUPERIOR is not competitive with other Hand Millers which are now on the market, but is in a class by itself, as is proven by the large number already in use, and the many repeat orders coming from shops having used them for years.

Descriptive Literature Gladly Sent on Request

We are also Designers and Manufacturers of Special Machinery, Tools, Dies, etc., as well as of Experimental and Model Work.

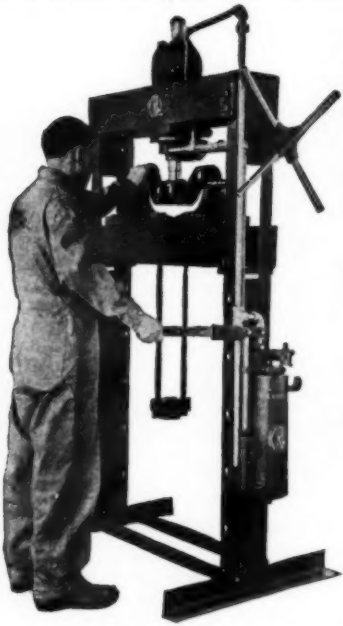
Superior Machine & Engineering Co.

1920 Ferry Park, Detroit, Mich.

KRW Hydraulic and Sensitive ARBOR PRESS

NEW 1931 MODEL

Many New Improvements for Perfection of Operation and Convenience Gives You All Around Efficiency at Low Cost



A new double acting piston fills cylinder with oil as the ram is brought down by means of the hand wheel of unique design — sliding handles which pull out to the ends greatly increase the leverage.

Side members slotted to permit long bars to pass thru.

35 tons Capacity

Direct to You

$125.00

F. O. B. Factory

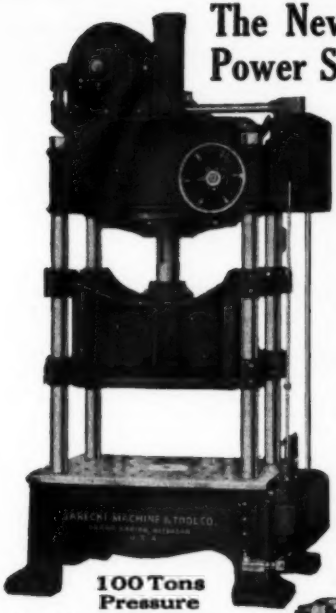
Complete with all attachments as shown

K. R. WILSON

10-14 Lock St., BUFFALO, N. Y., U. S. A.

K. R. Wilson Shop Equipment Sales Co., Los Angeles, California
Export Department: 126 Liberty St., New York City

The New Type CC Power Screw Press



for EASE of OPERATION

It's a ONE-MAN machine—a diemaker requires no help in handling dies. He can have one hand and both eyes on his work and at the same time start, stop or reverse the Press by manipulating the push button control. Rigid, powerful, delivers 100 tons pressure. No wedging—no prying—no tendency to nick or gouge dies. Perfect alignment of punch and die is always insured.

Write for Circular

100 Tons Pressure

Also Hand Screw Presses 25 and 80 Ton Pressures

Surface Grinder

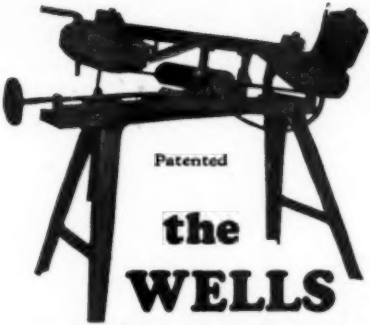
Accurate and powerful—runs without chatter. Both feeds have graduated dials. Equipped with latest improvements.

Details and prices on request

JARECKI MACHINE AND TOOL CO.

Department A

GRAND RAPIDS, MICHIGAN



Patented

the WELLS metal band saw

Incorporating the advantages of a hack saw with the cutting speed and economies of a band saw.

features:

Self contained and portable if desired—rapid cutting with extreme accuracy—long life blades, low blade expense. A wide range of usefulness—economical operation.

The WELLS SAW cuts soft and hard, ferrous and non-ferrous metals—thick and thin sections—pipe, **tubing,** strips, etc.

No change of blade or speed—cuts high carbon steel then soft brass rapidly and accurately.

Hundreds of duplicate pieces cut with a variation of less than .004".

Saves stock—width of cut less than 3/64"—blade .025" thick rigidly supported in six ball bearings.

Durable construction for hard service—strength without excess weight—ball bearing.

A Saw for Production, Maintenance and General Service

We wish you to have descriptive literature—your name and address please—today? Saws will be placed on trial.

Metal Saw Division

WELLS MANUFACTURING CORP.

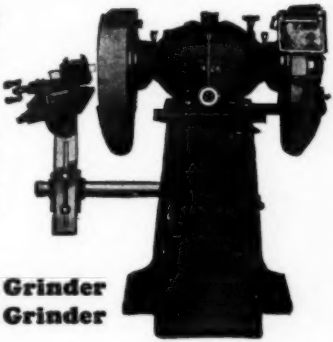
Three Rivers, Michigan

Exclusive territory being allotted—representatives and dealers interested, please write.

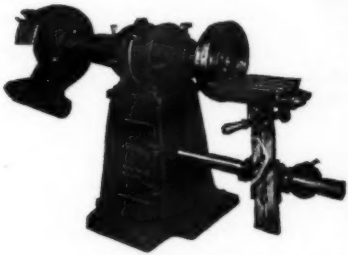
STANDARDIZE YOUR FACTORY

Grinding Attachment for Tungsten Carbide Tools

Graduated radial member insures precision in grinding tool bits. Sliding knuckle for wheel wear. 14 x 4 x 1½" cup wheels. 1 H. P. and 3 H. P.



Combination Grinder & Ring Wheel Grinder



This 5 H. P. grinder is fitted with an 18" ring wheel chuck. Three SKF ball bearings. Special ball thrust bearing to take care of end thrust of the ring wheel.

General Electric 40° motor and push button control. High grade nickel steel armature shaft. Sizes 3, 5 and 7½ H. P.

The Standard Electrical Tool Co.

1952 West 8th St., Cincinnati, Ohio

Standardize with Standard Tools

THE MARVEL

AUTOMATIC HACK SAW

SAW FRAME—All shafts and important bearings are BALL BEARING

Entirely Automatic—Feeds the Bar—Produces Duplicate Pieces at Tremendous Cutting Speed

THIS NEW Heavy Duty, Automatic High Speed Hack Saw will replace from six to eight ordinary hack saws on production work, making possible a great saving in time, floor space, labor and expenses. Feeds bars to any length from ⅛ in. to 26 in. and will cut 4 sq. in. per minute, floor to floor, in mild steel and 2 sq. in per minute in annealed high speed steel. Write for complete specifications and prices.

TWO SIZES { **No. 6A Capacity 6"x6"**
No. 9A Capacity 10"x10"

ARMSTRONG-BLUM MFG. CO.

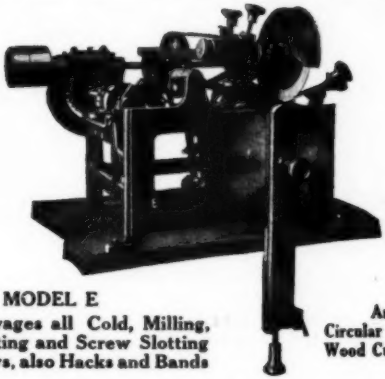
341 N. Francisco Ave., CHICAGO, ILL.

WARDWELL

Combination Grinder

—for—

BANDS HACKS AND CIRCULAR SAWS



MODEL E

Salvages all Cold, Milling, Slitting and Screw Slotting Saws, also Hacks and Bands

And all Circular and Band Wood Cutting Saws

One years saw purchases can be made to last from six to eight years.

Write for catalog.

The Wardwell Manufacturing Co.

Manufacturers of the largest line of Saw Filers made in U. S. A.

3165 Fulton Road, Cleveland, Ohio

Let the BLUE BOOK be Your Messenger

There are three essentials to good advertising—

1. **The article advertised must have real merit.**
2. **The copy describing it should be clear and concise.**
3. **The advertising message should be delivered to the maximum number of possible buyers.**

Hitchcock's Machine Tool Blue Book will deliver your message to more responsible users and buyers of machine tools, including automotive and other large manufacturing plants, railway mechanical officials, etc., than any other publication on earth. If your product is right and your copy is right, then the use of the Blue Book as your advertising medium completes a combination that is unbeatable.

The rates are most reasonable for the service; write for them.

HITCHCOCK PUBLISHING CO.
508 SOUTH DEARBORN STREET, CHICAGO, ILL.

Norgren Sight Feed Automatic Air Line Lubricator

APPROVED!

Eight Leading Trade Journals Have Given The Norgren Lubricator Editorial Presentation.

More Than Fifty Nationally Known Manufacturers Are Using Norgren Lubricators As Standard Equipment Or Plant Equipment.

The **NORGREN** Sight Feed Automatic Air Line Lubricator provides a simple means of injecting lubricant into the air stream of pneumatically operated tools. Adjustable to any demand. Entirely automatic. No working parts.

Ten days FREE TRIAL to any firm having satisfactory rating.

Norgren Industrial Hose Couplings
For Air, Water, Grease

SIMPLE—NEAT—EFFECTIVE

Positively will stand the bursting pressure of the hose. Concentric grip and seal prevents injury to the hose and protects hose end from destructive action of grease, oil, water.

Can be removed and re-applied whenever necessary.

Used as original equipment by the following nationally known machine builders:

Landis Tool Co., Waynesboro, Pa.
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Manufactured by

CARL A. NORGREN CO., - Denver, Colorado

***Eastern Distributor*—J. N. Fauver Co., 31 Brady St., Detroit, Mich.**

The Utility Sleeve Detachable Taper Shank

Use one with all your straight shank tools, and you will discover a new field in tool economy.

Simply insert the shank of a drill or reamer into its sleeve, and the "Utility" works as positively and efficiently as a solid taper shank tool.

The substantial saving is obvious. It eliminates expensive chucks and when the tool is worn or broken you merely discard the straight shank tool, not the whole taper shank tool.

Glenzer tools establish economy — send for circular

The J. C. Glenzer Co.

6469 Epworth Boulevard

DETROIT, MICHIGAN

MORE PRODUCTION

With Higher Speed, Less Spoiled Work, Fatigue or Broken Taps

ETTCO

High Speed—Sensitive

TAPPING ATTACHMENT

Certainly You Can Be Guided by the Judgement of Hundreds of Factories Who Use ETTCOS.

FIVE SIZES—UP TO ONE INCH TAPS

Try Ettcos at Our Expense. We have a nice New Circular ? ?

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No. 10 Ball Bearing Punch

Capacity 3/16" thru 1/4" Iron
Weight, 8½ lbs.

No. 8 Roller Bearing Punch

Operating handles will not become disengaged.

CAPACITY—1/4" hole thru 1/4" iron. Weight, 16 lbs.

Made in 3 sizes: Nos. 7, 7½ and 8.

No. 20 Ball Bearing Punch

Capacity, ½-inch hole through ½-inch iron

Weight, Complete 20 lbs.

Angle Iron Combination No. 455

Shears, Notches and Bends a 2-inch by 2-inch by 1/4-inch Angle Iron in One Minute Flat.

No. 6 Slitting Shear

Roller Bearing

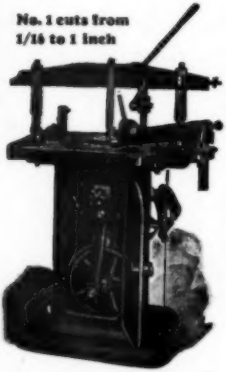
Capacity 3/16 thickness. Throatless Drop Forged

Write for Catalog and Price List on Entire Line

Whitney Metal Tool Co.

95 Forbes Street, Rockford, Illinois

No. 1 cuts from
1/16 to 1 inch



For Keyseating on a JOB or PRODUCTION Basis—

The DAVIS Keyseater

Covers entire range of keyseating jobs performed in the average shop, efficiently and economically. Profitable alike on jobbing or production assignments as costs are kept consistently low, due to the long life of the cutters, sustained accuracy and the two minute set-up. Made in two sizes.

Write for Complete Information

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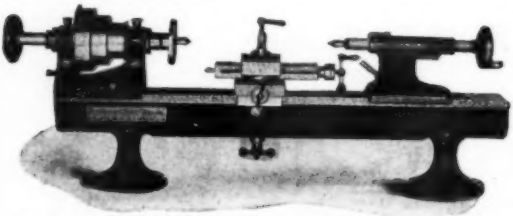


WADE PRECISION BENCH LATHES

The economy of these lathes is to perform work, within their capacity, ***to Better Advantage, More Accurately, at Lower Initial Cost*** than on larger and more expensive machines. In fact, for some classes of work there is no substitute for the fine accuracy and convenient operation obtained on Wade Bench Lathes.

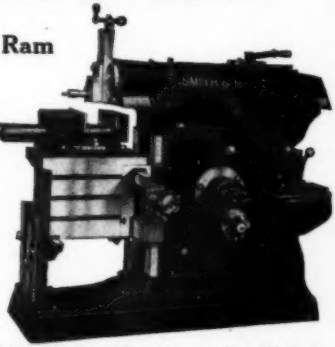
Let us know your problems

THE WADE TOOL CO., Waltham, Mass.

SHAPERS

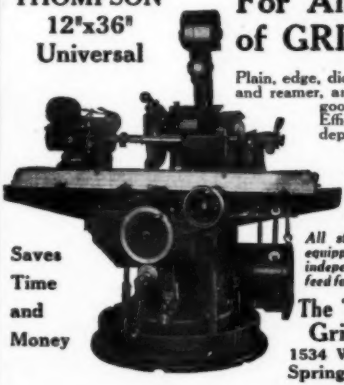
"V" Type Ram

12", 14", 16", 20", 25" Gear Box single pulley or motor drive, also 16", 20", 25" B. G. cone drive with belt shifter. 32" B. G. all geared single pulley or motor drive, all sizes crank type.



The Smith & Mills Co., Cincinnati, O., U.S.A.

THOMPSON 12"x36" Universal



Saves Time and Money

For All Kinds of GRINDING

Plain, edge, die, surface, cutter and reamer, and internal—and good at all of them. Efficient, accurate, dependable.

Work adjusts to a fixed grinding wheel, an exclusive feature that's better.

All standard machines equipped with auxiliary independent coarse cross feed for surface grinding.

The Thompson Grinder Co.
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Townsend Centrifugal Multi-Blow Riveters

THE ONLY MACHINE THAT IMITATES HAND RIVETING IN EVERY WAY.

NUMEROUS TYPES FOR ALL KINDS OF WORK.

Round and Flat heads, hollow and cheek rivets from .008" to 5/16" without distortion or breaking of fragile material. In places inaccessible by any other method.

H. P. Townsend Mfg. Co.

Hartford, Conn.

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Greenerd Arbor Presses

Established 1883

Illustration shows

No. 5 Press

12 tons pressure

TIMKEN BEARING EQUIPPED

Write for our Catalog showing 64 different styles.

Greenerd Arbor Presses

Nashua, N. H.

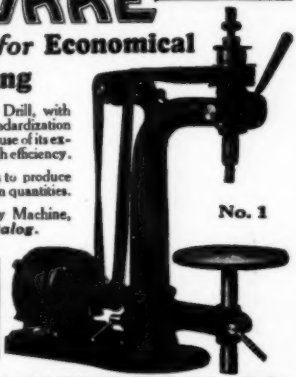
BURKE

A Good Choice *for* Economical Bench Drilling

The Burke 10" Sensitive Bench Drill, with Almond Chucks, has earned standardization with most machine tool dealers because of its exceptionally low original cost and high efficiency.

Motor drive; good range of speeds to produce really accurate work from 0 to 3/8" in quantities.

We also build a 12" Heavy Duty Machine, 9/16" Capacity. ***Ask for Catalog.***



No. 1

PRICES

No. 0 Belt Driven	$20 50
No. 1 Belt Driven	23.50
No. 1 Motor Driven	43.50

all with Almond Chucks

THE BURKE MACHINE TOOL CO.
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ATLAS ARBOR PRESSES

For all forcing operations
No. 55 for—

Power
Speed
Versatility

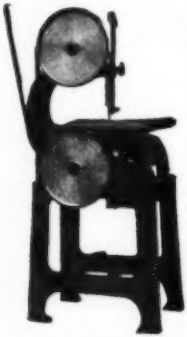
with a ram travel of 27 feet per minute this press develops 10 tons pressure.

Write for descriptive Bulletin on this and other Atlas Presses.

ATLAS PRESS CO.
KALAMAZOO, MICH.

The "JARVIS" Bench Band Saw

For Metal Cutting Operations



The "Jarvis" Bench Band Saw cuts metals—straight, curved or bevel. It is motor driven, operates from a lamp socket and is vibrationless. Ball bearing disc wheels, worm drive.

12" size cuts up to 1½" cold rolled steel. 16" size cuts up to 2" cold steel. Also made for cutting soft metals, Bakelite fibre, transite, wood, etc.

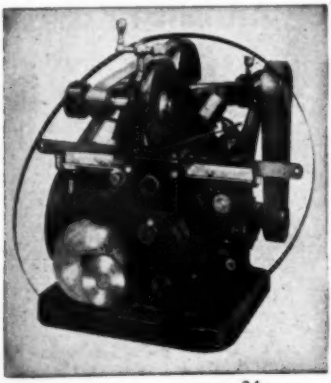
Details gladly sent upon request.

BENJ. E. JARVIS, Inc.
NEWARK, NEW JERSEY

Walls Sales Corp., Agents
96 Warren St., New York City

PORTER SAW GRINDERS

Last Longer with Less Upkeep



These machines have self adjusting ball bearings in wheel spindle and self adjusting bronze bearings in work spindle —they need no attention during their life.

This machine will sharpen metal slitting circular saws, power hack saw blades and metal and wood cutting band saws.

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J. E. PORTER MACHINE CO.
1872 Jefferson Street,
MUSKEGON, MICH.

PEERLESS UNIVERSAL HIGH SPEED

METAL SAWING MACHINES

Fast, accurate production Metal Sawing Machines for machine steels, tool steels, stainless steels and high speed steels as well as all other classes of cut-off work. Made in three sizes—6"x6", 9" x 9", 13" x 13". Three Speeds. Belt or motor drive. Arrangements for motor, standard equipment.

"If it's a cut-off proposition—It's for PEERLESS"

Peerless Machine Co.
1619 Racine St.,
RACINE, WIS., U. S. A.
New York Office: 15 Warren St.

Grant NOISELESS SPINNING Riveter

Highest Speed
Perfect Uniformity
Lowest Cost

A Grant Riveter places and finishes one rivet every second it is in operation.

It will finish rivets to the exact degree of tightness or looseness that you desire, and the heads are perfectly formed and highly polished.

The Grant Riveter keeps operating costs at a minimum, and is so simple that unskilled labor can operate it as effectively as can skilled machinists.

Send samples of your riveting work and ask for a catalog

The Grant Mfg. & Machine Co.
C. E. Station, Bridgeport, Conn.

USE "D. & W." DEMAGNETIZERS!

Of unique construction, they are simple, dependable

A rigid continuous "U" shaped core, made of the highest grade laminated electrical steel, is energized by two stationary coils, thru which alternating current is passed. Construction is similar for d. c. machine, and in addition containing a small converter.

INDESTRUCTIBLE D&W MAGNETIC CHUCKS REG. U.S. PAT. OFF.

Have you any special problems in connection with the use of Magnetic Chucks? We will gladly investigate and report on same, or design a special chuck for your particular needs. *Write us today.*

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For a comprehensive display of new, up-to-date wood-working machinery and allied equipment, as well as lists of used machinery, consult

Wood-Working Machinery

It's a publication similar to this, but devoted to the advertising of wood-working machines, including saw mill equipment. A copy will be sent you free on application.

Hitchcock Publishing Co.,

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First Choice !

"Gusher" Coolant Pumps are the first choice of leading manufacturers of fine machine tools. "Gusher" dependability is the reason for their choice.

THE RUTHMAN MACHINERY CO.
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GUSHER COOLANT PUMP

Send for complete catalog of "Gusher" motor belt and plain drive coolant pumps.

Blower, Sprayer, Suction-cleaner

Instantly Convertible ~ No Installation

10 days Free Trial

This portable electric blower delivers DRY air, **free from oil**, at high velocity, yet low pressure. It safely, quickly, and efficiently cleans motors, generators, converters, shafting, overhead piping, etc. Reduces fire risk and danger of "shorts" and "burnouts."

Instantly convertible for suction-cleaning stocks, bins, auto interiors, furniture, overhead pipes, shafts, line shafting, etc, or for spraying insecticides, deodorants, paints, lacquers, etc.

Attach to any light socket. Less than 2¢ an hour to run. Ball bearings—no oiling. 4 models. Sold by over 20,000 concerns. Fully **guaranteed** by 20 year old company, originators and largest manufacturers of portable electric blowers.

Try this blower 10 days. Then pay for it or return it at our expense.

WRITE NOW For prices and descriptive folder No. 627; also our 10 day absolutely FREE trial offer we are now making for a **limited time.**

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Ball-bearing
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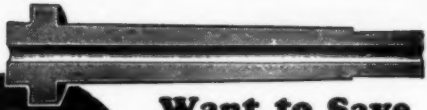
Cadillac



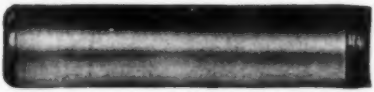
Hollow Bored Forgings and Steel Shafting

Want to Save Money on Your Forgings and Steel Shafts ?

Then get in touch with us. Our large production facilities for making the finest of Lathe Spindles, Rams, Clutch Shafts, Piston Rods, etc., enables us to quote very reasonable prices. And without skimping the quality, too, for we use only the best of materials. Years of experience guarantee your satisfaction, and our unusual facilities assure you of prompt delivery. ***Send Us Your Blue Prints for a Quotation.***

American Hollow Boring Co., 1035 West 19th St., ERIE, PA.

ACME DOWEL PINS



Standard hardened and ground to within .0002" over listed sizes. Also carried oversize .001" for use in repair work, etc. Ask for Bulletin No. 551.

ACME DRILL BUSHINGS

Bulletin No. 501 describes and illustrates the various types and standard sizes of ACME Drill Bushings. Special sizes made to your order.

Bulletins and special low prices sent upon request.

ACME

ACME INDUSTRIAL CO.

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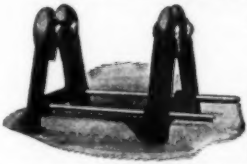
Made in 6 Sizes for Balancing Anything That Revolves up to 24000 lbs.



Anderson Improved Balancing Ways

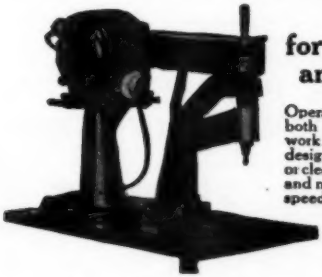
Require no leveling or adjustment. They are especially sensitive! Spindles and discs are hardened like the frame—they cannot lose their effectiveness or become injured by use.

"Swing"	20"	40"	60"	72"	96"	72"
Greatest distance bet. standards	20"	30"	30"	66"	88"	20'
Capacity in lbs.	1000	2000	2000	5000	10000	24000
Approx. shipping weight	45	90	150	350	650	
Code	Bemi	Bid	Bin	Bib	Ben	

Any of above can be furnished with longer shafts

Anderson Bros. Mfg. Co.
1915 Kishwaukee St., Rockford, Ill.

The VIM Bench Machine



Type "C" for Screw Driving and Nut Setting

Operated by foot pedal, leaving both hands free for adjusting work in hand. It is especially designed for female help. Throat or clearance of work is 6". Screws and nuts can be driven at high speed—2000 R. P. M. bit speed—if desired. We manufacture *five different types,* for all purposes of screw driving and nut setting.

Send for circulars describing these tools

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Ames Amplifying Comparator

An unusually rugged and durable gauge for testing parts in quantity with speed and accuracy.

It Repeats Its Readings! Send for Special Bulletin.

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QUICK DELIVERIES

A QUALITY PRODUCT

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3 - Bar Boring Tool

A permanent tool that takes bits that can be quickly ground from stock shapes of high speed steel—effectively equals *three* complete sets of boring and inside threading tools. A slight turn of nut releases or fastens both Bar and Holder. Bars changed instantly, allowing the use of stiffest bar possible (maximum speed and feed) for each operation.

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"The Tool Holder People"

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The R-T-G AUTOMATIC Double Action TRIP HAMMER

FOR Pointing, Burring, Riveting, and Eyeleting

SPEEDY and ACCURATE

DESIGNED by expert engineers to meet the demand for an inexpensive machine capable of handling a large variety of work, the R-T-G Trip Hammer has found favor with manufacturers all over the country. Speedy, accurate, turns out better work in less time. Made in four sizes. Our engineers are at your service without obligation.

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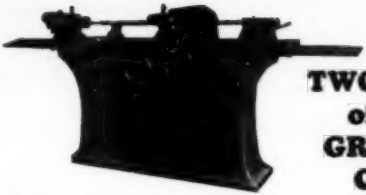
ROCHESTER, NEW YORK, U. S. A.



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COLONIAL Broach Sharpener

Specifically designed for sharpening broaches, the COLONIAL grinds the teeth and hard-to-get-at undercut more economically and correctly than any other machine. Not only can you save approximately *two-thirds* of your re-sharpening costs—but you get a better job—the equivalent of a new tool at each sharpening, and increase broach life about 50%.

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GOOD GEARS at LOW COST

GEARS BY CROFOOT are moderate in cost, due to our large volume of business. This worthwhile saving is yours, as well as our free advisory service of experienced engineers who are always ready to assist in solving your gear problems. Nearly a quarter of a century's experience is at your disposal without obligation.

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CULLMAN SPROCKETS

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Roller, block and silent chains

Carried in stock and made to order

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SPEED REDUCERS

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Abolish Expensive Hand Finishing

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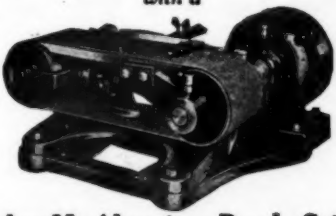

Simplex-M Abrasive Band Grinder

This Grinder accelerates production and cuts costs. Hand emerying or filing operations are antiquated in comparison. The use of this new modern machine assures straight grain finishes with sharp edges. *Details of this and other styles and sizes on request.*

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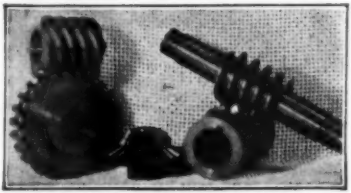
GEARS



All types and materials including ground thread worms

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ALL TYPES AND SIZES

QUALITY PREDOMINATES

"V" Belt Pulley Drives

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BOSTON GEARS

Mall
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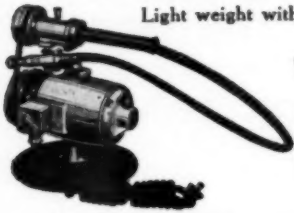
HEAVY DUTY—HIGH SPEED
Die Sinking Machines



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Speed ranges 300 to 21,000 r. p. m.

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Type MSA—½ H. P.

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FULL BALL BEARING MACHINE

⅓ H.P.—Three Speeds

Other Types In

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Three Speed Horizontal Types ⅛ to 2 H. P.

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Expanding Mandrels

JOBS with bores ranging in sizes from ½" to 7" are taken by 14 of these mandrels. They are sold either singly or in sets.

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buy a tool made for the purpose of removing the broken pieces. It's called the

Walton Tap Extractor

and a mighty handy tool it is, too! Don't hold up production and waste a valuable mechanic's time in digging out broken taps when all you have to do is insert the WALTON—twist the end—and the tap backs out without injury to the threads. Made in three and four-flute styles.

Glad to Send One for a 60-Day Trial in Your Shop

The Walton Company
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Punch MORE Holes
with
T. H. L. PUNCHES

T. H. L. Punches will produce more than the average number of holes, for they are made of the highest grade, dependable tool steel and are hardened and tempered—*right*. Our experience of nearly 40 years in making of punches assures you satisfactory, continuous and profitable production.

A Trial Order

will convince you. We carry large stocks of regular sizes for immediate delivery—special sizes quickly made.

Write for a copy of our Catalog

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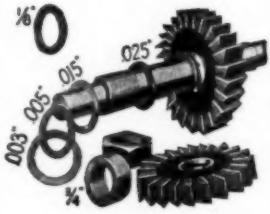
Steel Spacing Washers—

Made of a good grade of Cold Rolled Strip Steel, also known as Shim Steel



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Stock thicknesses: .002, .003, .004, .005, .006, .007, .008, .010, .012, .015, .020, .025, .032, .047, .063, .093 and .125 inch.

Other thicknesses up to 3.000" made to order, with keyways if so ordered.

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THE SCHWERDTLE STAMP CO.
BRIDGEPORT, CONN.

"ALNOR" Pyrometers

for the Hardening Furnace

MODEL 223

Inexpensive, yet accurate and durable, the ALNOR Pyrometer is used by large and small shops everywhere for heat-treating work. Because of its low first cost and compact size it is also very popular for soft metal melting, galvanizing, die casting, japanning, enameling, measuring flue gas temperatures and many other purposes.

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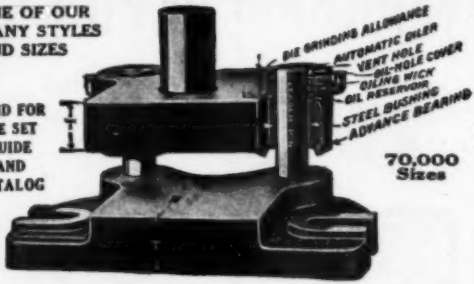

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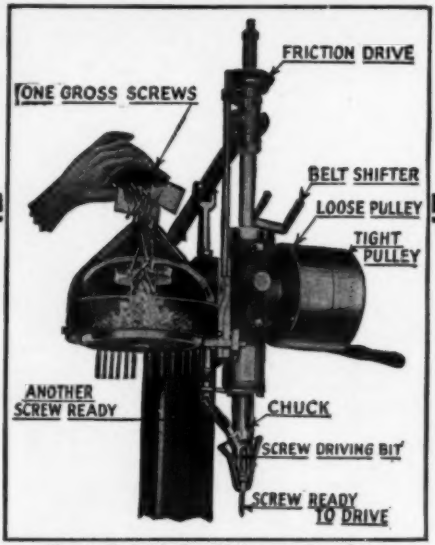

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Experienced operators drive up to 2,000 screws per hour.
Reduces screw driving costs from 65 to 85 per cent.
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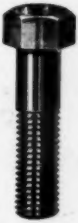

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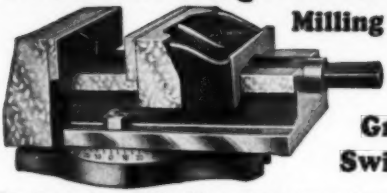

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In Ordering this Vise give size of slot in table

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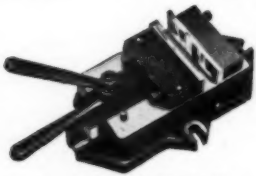
Speed — Power — Strength — Accuracy

Hartford Milling Vise



Jaw width	5"
Jaw depth	1¼"
Maximum opening	3½"
Weight	40 lbs.

Also made in the swivel-jaw type with hard or soft jaws, maximum opening 2¼".

In point of service the Hartford is unusual. Its specialized design includes a lower cam-faced handle that insures speedy opening and return, and a top eccentric lever handle that gives tremendous binding power. The steel parts are drop forged, hardened and ground—base is made of special iron. The Hartford will stand up under every demand that may be made upon it.

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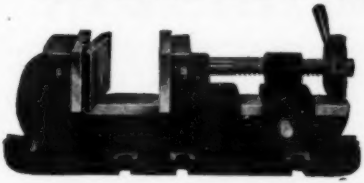
Holds tapered and irregular shaped pieces firmly



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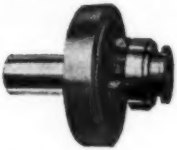

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Easy, quiet operation.

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Cincinnati Electrical Tool Co., Cincinnati, O.
Hammond Mchy. Builders, Inc., Kalamazoo, Mich.
Jarecki Mchs. & T. Co., Grand Rapids, Mich.
Standard Electrical Tool Co., Cincinnati, O.
U. S. Electrical Tool Co., Cincinnati, O.

Grinding Machines, Surface
Cincinnati Electrical Tool Co., Cincinnati, O.
Standard Electrical Tool Co., Cincinnati, O.
Stevens Inc., John B., 306 Hudson Street, New York
Thompson Grinder Co., Springfield, Ohio
U. S. Electrical Tool Co., Cincinnati, Ohio

Grinding Machines, Tap
Standard Electrical Tool Co., Cincinnati, O.

Grinding Machines, Tool
Cincinnati Electrical Tool Co., Cincinnati, O.
Hammond Mchy. Builders, Inc., Kalamazoo, Mich.
Standard Electrical Tool Co., Cincinnati, O.
Taylor & Fenn Co., Hartford, Conn.
U. S. Electrical Tool Co., Cincinnati, Ohio

Grinding Machines, Tool Post
Cincinnati Electrical Tool Co., Cincinnati, O.
Standard Electrical Tool Co., Cincinnati, O.
U. S. Electrical Tool Co., Cincinnati, Ohio

Grinding Machines, Universal
Thompson Grinder Co., Springfield, Ohio

Grinding Machines, Vertical Spindle
Standard Electrical Tool Co., Cincinnati, O.
U. S. Electrical Tool Co., Cincinnati, Ohio

Hack Saw Blades
Armstrong-Blum Mfg. Co., 341 N. Francisco Ave., Chicago
Peerless Machine Co., Racine, Wis.

Hack Saw Machines
Armstrong-Blum Mfg. Co., 341 N. Francisco Av., Chicago
Peerless Machine Co., Racine, Wis.

Hammers, Trip
Rochester Tool & Gauge Corporation, Rochester, N. Y.

Hoists, Electric
Box Crane & Hoist Corp., Philadelphia, Pa.
Browning & Co., Inc., Victor R., Cleveland, Ohio

Hoists, Portable
Canton Foundry & Machine Co., Canton, Ohio
Hagan, H. J., 109 Lafayette St., New York

Hollow Mills
Wilder Tool Co., Greenfield, Mass.

Hose Couplings
Hunt & Son, C. B., Salem, Ohio

Index Centers, Single and Multi Spdl.
Stevens Inc., John B., 306 Hudson Street, New York

Classified Finding Index

Jigs and Fixtures
American Tool Works, Inc., Hartford, Conn.
Elco Tool & Screw Corp., Rockford, Ill.
Hartford Special Mchy. Co., Hartford, Conn.

Keyseating Machines
Davis Keyseater Co., Rochester, N. Y.

Lag Screws
Elco Tool & Screw Corp., Rockford, Ill.

Lathe Drives
Cullman Wheel Co., 1359 Altgeld St., Chgo.

Lathe Grinders
Standard Electrical Tool Co., Cincinnati, O.

Lathes, Automatic
Townsend Mfg. Co., H. P., Hartford, Conn.

Lathes, Bench
Ames Co., B. C., Waltham, Mass.
Hardinge Brothers, Inc., 1770 Bertean Ave., Chicago

Lathes, Engine
Hardinge Brothers, Inc., 1770 Bertean Ave., Chicago
LeBlond Mch. Tool Co., R.K., Cincinnati, O.

Lathes, Extension Bed Gap
LeBlond Mch. Tool Co., R.K., Cincinnati, O.

Lathes, Gap
LeBlond Mch. Tool Co., R.K., Cincinnati, O.

Lathes, Hand
Stevens Inc., John B., 306 Hudson Street, New York

Lathes, Manufacturing
LeBlond Mch. Tool Co., R.K., Cincinnati, O.
Sundstrand Machine Tool Co., Rockford, Ill.

Lathes, Polishing and Buffing
Cincinnati Electrical Tool Co., Cincinnati, O.
Hammond Mchy. Builders, Inc., Kalamazoo, Mich.
Standard Electrical Tool Co., Cincinnati, O.

Lathes, Precision
LeBlond Mch. Tool Co., R.K., Cincinnati, O.
Wade Tool Co., Waltham, Mass.

Lathes, Tool Room
LeBlond Mch. Tool Co., R.K., Cincinnati, O.

Lubricator, Automatic
Norgren Co., Carl, A., Denver, Colo.

Mandrels, Expanding
Nicholson & Co., W. H., Wilkesbarre, Pa.
Western Tool & Mfg. Co., Springfield, O.

Mandrels, Solid
Nicholson & Co., W. H., Wilkesbarre, Pa.

Machine Screws
Elco Tool & Screw Corp., Rockford, Ill.

Millers, Bench
Hardinge Brothers, Inc., 1770 Bertean Ave., Chicago

Milling Attachments
Burke Machine Tool Co., Conneaut, Ohio
Kearney & Trecker Corp., Milwaukee, Wis.
LeBlond Mch. Tool Co., R.K., Cincinnati, O.
Stevens Inc., John B., 306 Hudson Street, New York
Taylor & Fenn Co., Hartford, Conn.

Milling Machines, Bench
Ames Co., B. C., Waltham, Mass.
Burke Machine Tool Co., Conneaut, Ohio
Sundstrand Machine Tool Co., Rockford, Ill.

Milling Machines, Hand
Burke Machine Tool Co., Conneaut, Ohio
Sundstrand Machine Tool Co., Rockford, Ill.
Superior Machine & Eng. Co., Detroit, Mich.

Milling Machines, Manufacturing
Kearney & Trecker Corp., Milwaukee, Wis.

Milling Machines, Plain
Burke Machine Tool Co., Conneaut, Ohio
Kearney & Trecker Corp., Milwaukee, Wis.
LeBlond Mch. Tool Co., R.K., Cincinnati, O.
Sundstrand Machine Tool Co., Rockford, Ill.

Milling Machines, Portable
Pedrick Tool & Machine Co., Philadelphia

Milling Machines, Spline
Taylor & Fenn Co., Hartford, Conn.

Milling Machines, Universal
Kearney & Trecker Corp., Milwaukee, Wis.
LeBlond Mch. Tool Co., R.K., Cincinnati, O.

Milling Machines, Vertical
Kearney & Trecker Corp., Milwaukee, Wis.
LeBlond Mch. Tool Co., R.K., Cincinnati, O.
Taylor & Fenn Co., Hartford, Conn.

Name Plates, Etched and Stamped
Schwerdtle Stamp Co., Bridgeport, Conn.

Classified Finding Index

Nut Setters, Electric

Cincinnati Electrical Tool Co., Cincinnati, O.
Standard Electrical Tool Co., Cincinnati, O.
U. S. Electrical Tool Co., Cincinnati, O.
Vim Electric Tool Co., 149 Broadway, N. Y.

Nuts, Machine Screw

Elco Tool & Screw Corp., Rockford, Ill.

Pins, Leader And Dowel

Baumbach Mfg. Co., E. A., 1812 So. Kilbourne Ave., Chicago

Pipe Bending Machines

Pedrick Tool & Machine Co., Philadelphia

Pipe Plugs, Square Head and Slotted

Elco Tool & Screw Corp., Rockford, Ill.

Planers, Valve Seat, Portable

Pedrick Tool & Machine Co., Philadelphia

Polishing and Buffing Machines

Cincinnati Electrical Tool Co., Cincinnati, O.
Excelsior Tool & Mch. Co., E. St. Louis, Ill.
Hammond Mchy. Builders, Inc., Kalamazoo, Mich.
Mall Tool Co., 7780 S. Chicago Ave., Chicago
Standard Electrical Tool Co., Cincinnati, O.
U. S. Electrical Tool Co., Cincinnati, O.

Presses, Arbor

Atlas Press Co., Kalamazoo, Mich.
Greenerd Arbor Presses, Nashua, N. H.
Nicholson & Co., W. H., Wilkesbarre, Pa.
Wilson, R. K., Buffalo, N. Y.

Presses, Broaching

Greenerd Arbor Presses, Nashua, N. H.

Presses, Foot

Taylor & Fenn Co., Hartford, Conn.

Presses, Punch

Lewthwaite Mchs.Co.,T.H.,311E.47th.,N.Y.

Presses, Screw

Jarecki Mchs. & T. Co., Grand Rapids, Mich.

Pulley Machinery

Avey Drilling Machine Co., Cincinnati

Profiling Machines

Wade Tool Co., Waltham, Mass.

Pulleys, Iron, Solid and Split

Conway Clutch Co., Cincinnati, O.

Pumps, Lubricant

Bathman Machinery Co., Cincinnati, O.

Punch Press Feeds

Wittek Mfg. Co., 4809 W. 24th Place, Chgo.

Punch, Shear and Bender, Hand

Armstrong-Blum Mfg. Co., 841 N. Francisco Ave., Chicago

Punches, Hand

Armstrong-Blum Mfg. Co., 841 N. Francisco Av., Chicago
Lewthwaite Mchs. Co., T. H., 311 E. 47th, New York
Whitney Metal Tool Co., Rockford, Ill.

Punches and Dies

Lewthwaite Mchs.Co.,T.H.,311E.47th.,N.Y.

Punches and Shears

Excelsior Tool & Mch. Co., E. St. Louis, Ill.
Hagen, H. J., 109 Lafayette St., New York

Pyrometers

Illinois Testing Laboratories, Inc., 150 W. Austin Ave., Chicago

Reamer Holders

Nicholson & Co., W. H., Wilkesbarre, Pa.

Reamers, Adjustable

Cleveland Twist Drill Co., Cleveland, Ohio.
Schellenbach Hunt Tool Co., Cincinnati, O.

Reamers, Portable Electric

Standard Electrical Tool Co., Cincinnati, O.
U. S. Electrical Tool Co., Cincinnati, Ohio

Riveters, Multiple Spindle

Grant Mfg. & Mchs. Co., Bridgeport, Conn.

Riveters, Pneumatic

Grant Mfg. & Mchs. Co., Bridgeport, Conn.

Riveting Machines

Grant Mfg. & Mchs. Co., Bridgeport, Conn.
Townsend Mfg. Co., H. P., Hartford, Conn.

Rod Cutters

Armstrong-Blum Mfg. Co., 841 N. Francisco Av., Chicago
Lewthwaite Mchs.Co.,T.H.,311 E.47th,N.Y.

Roll Forming Machines

McKinney Tool & Mfg. Co., Cleveland, Ohio

Rotary Tables, Hand Feed

Stevens Inc., John B., 306 Hudson Street, New York

Classified Finding Index

Saw Sharpening Machines
Porter Mchy. Co., J. E., Muskegon, Mich.
Wardwell Mfg. Co., Cleveland, O.

Saws, Electric Hand
U. S. Electrical Tool Co., Cincinnati, O.

Scraping Machines, Hand & Pneumatic
Anderson Brothers Mfg. Co., Rockford, Ill.

Screw Drivers, Electric
Cincinnati Electrical Tool Co., Cincinnati, O.
Standard Electrical Tool Co., Cincinnati, O.
U. S. Electrical Tool Co., Cincinnati, Ohio
Vim Electric Tool Co., 160 Broadway, N. Y.

Screw Driving Machines, Automatic
Reynolds Machine Co., Massillon, Ohio

Screw Machines, Automatic
Townsend Mfg. Co., H. P., Hartford, Conn.

Screws, Cap, Drive, Lag, Mch. & Wood
Elco Tool & Screw Corp., Rockford, Ill.

Set-Up Appliances
Standard Shop Equip. Co., Philadelphia, Pa.

Shafts, Flexible
Keller Mech. Eng. Corp., 58A Washington St., Brooklyn, N. Y.
Mall Tool Co., 7720 S. Chicago Ave., Chgo.
Strand Co., N. A., 8001 N. Lincoln St., Chgo.
U. S. Electrical Tool Co., Cincinnati, Ohio

Shafts, Steel
American Hollow Boring Co., Erie, Pa.

Shaping Machines
Osborne & Sexton Machy. Co., Columbus, O.
Smith & Mills Co., Cincinnati

Shears, Alligator
Canton Foundry & Machine Co., Canton, O.

Shears, Hand
Armstrong-Blum Mfg. Co. 341 N. Francisco Av., Chicago
Lewthwaite Machine Co., T.H., 311 E. 47th St., New York
Whitney Metal Tool Co., Rockford, Ill.

Slotting Machines, Screw Head
Stevens Inc., John 316 Hudson Street, New York

Spacing Washers
Detroit Stamping Co., Detroit, Mich.

Special Tools and Machinery
American Tool Works, Inc., Hartford, Conn.
Superior Machine & Eng. Co., Detroit, Mich.
Wade Tool Co., Waltham, Mass.

Speed Reducers, Worm, Spur and Herringbone
Boston Gear Works Sales Co., Norfolk Downs, Mass.
Chicago Gear Works, 769-773 W. Jackson Blvd., Chicago
Cullman Wheel Co., 1359 Altgeld St., Chgo.
Foote Gear Works, Inc., 4731 13th St., Chicago, Ill.

Sprockets
Chicago Gear Works, 769-773 W. Jackson Blvd., Chicago
Cullman Wheel Co., 1359 Altgeld St., Chgo.
Massachusetts Gear & T. Co., Woburn, Mass.

Stamps, Steel and Rubber
Schwerdtle Stamp Co., Bridgeport, Conn.

Stencils, Brass and Oil Board
Schwerdtle Stamp Co., Bridgeport, Conn.

Straightening Machines
Whitney Metal Tool Co., Rockford, Ill.

Stud Setters
Precunier Safety Chuck Co., 14 S. Clinton St., Chicago

Tap Extractors
Walton Co., Hartford, Conn.

Tap Holders
Precunier Safety Chuck Co., 14 S. Clinton St., Chicago

Tapping Machines and Attachments
Avey Drilling Machine Co., Cincinnati
Burke Machine Tool Co., Conneaut, Ohio
Cincinnati Electrical Tool Co., Cincinnati, O.
Etico Tool Co., Inc., 694 Johnson Ave., Brooklyn, N. Y.
Leland Gifford Co., Worcester, Mass.
Precunier Safety Chuck Co., 14 S. Clinton St., Chicago
Whitney Metal Tool Co., Rockford, Ill.

Threading Machines, Automatic, Stud
Grant Mfg. & Mchc. Co., Bridgeport, Conn.

Threading Tools
Armstrong Bros. Tool Co., 368 N. Francisco Av., Chicago

Tool Holders
Armstrong Bros. Tool Co., 368 N. Francisco Av., Chicago
Western Tool & Mfg. Co., Springfield, O.
Wilder Tool Co., Greenfield, Mass.

Classified Finding Index

Tools, Boring
Armstrong Bros. Tool Co., 308 N. Francisco Av., Chicago

Tools, Lathe and Planer
Armstrong Bros. Tool Co., 308 N. Francisco Av., Chicago

Tools, Machinists'
Armstrong Bros. Tool Co., 308 N. Francisco Av., Chicago

Trip Hammers
Rochester Tool & Gauge Corporation, Rochester, N. Y.

Tube Flanging Machines
Grant Mfg. & Mchc. Co., Bridgeport, Conn.

Turntables
Canton Foundry & Machine Co., Canton, O.

Universal Joints
American Tool Works, Inc., Hartford, Conn.
Boston Gear Works Sales Company, Norfolk Downs, Mass.

Used and Rebuilt Machinery
Automatic Machine & Engineering Co., Inc., Detroit, Mich.
Bennett Machinery Co., 30 Church St., New York, N. Y.
Bernstein & Co., Geo. M., 221 N. Elizabeth St., Chicago, Ill.
Brandes Machinery Co., Cleveland, Ohio
Brandt Machinery Co., Pittsburgh, Pa.
Broadway Machinery Co., 211 Centre St., New York, N. Y.
Brotherhood & Son, Percy M., 25 Church St., New York, N. Y.
Brown Machinery Co., St. Louis, Mo.
Brownell Machinery Co., Providence, R. I.
Cincinnati Mchy. & Supply Co., Cincinnati, O.
Clinton Machinery Co., 126 S. Clinton St., Chicago, Ill.
Davis Machinery Exchange, Toledo, O.
Donahue Steel Products Co., 74th and Ashland Ave., Chicago
Eastern Machinery Co., Cincinnati, O.
Essley Machinery Co., E. L., 451 Washington Blvd., Chicago
Foster Machinery Co., Cleveland, O.
Hill, Clarke & Co., 649 W. Washington Blvd., Chicago
Hyman & Sons, Joseph, Philadelphia, Pa.
Indianapolis Mchy. & Supply Co., Indianapolis, Ind.
Interstate Mchy. Co., 120 S. Clinton, Chgo.
Iroquois Machinery Co., Buffalo, N. Y.
Johnson & Sons Machinery Co., Wm. C., St. Louis, Mo.
Jones Machine Tool Co., Cincinnati, Ohio
Knoedler Machinery Exch., Philadelphia, Pa.
Kinney Co., E. A., Cincinnati, O.
Klauber Mchy. Co., E. L., St. Louis.
McDonald Machinery Co., St. Louis
Marr-Galbreath Mchy. Co., Pittsburgh, Pa.
Midwest Equipment Co., 628 W. Lake St., Chicago, Ill.
Mid-West Machine Tool & Supply Company, Davenport, Iowa
Miles Machinery Co., Saginaw, W. S., Mich.
Morey and Co., Inc., 401 Broome St., N. Y.
Morris Machinery Co., Inc., Newark, N. J.
Nelson Machinery Co., Green Bay, Wis.
Norton-Broadway Mchy. Co., Cincinnati, O.
O'Brien Machinery Co., Philadelphia
Osborne & Sexton Machy. Co., Columbus, O.
Partridge, Arthur S., St. Louis, Mo.

Used and Rebuilt Machinery—Cont.
Randle Machinery Co., Cincinnati, O.
Reeve-Fritz Co., 559 W. Washington, Chgo.
Riverside Machinery Depot, Detroit, Mich.
Russell Machine Co., Pittsburgh, Pa.
Saltzman, B. L., 524-26 W. Van Buren St., Chicago, Ill.
Scott-Bansbach Mchy. Co., 4607 W. 26th St., Chicago
Segal Machinery Co., 849 West Lake Street, Chicago, Ill.
Simmons Machine Tool Corp., Albany, N. Y.
Strafer Machinery Co., Jersey City, N. J.
Strong, Carlisle & Hammond Co., Cleveland
Sun Machinery Co., Newark, N. J.
Surplus Material & Mchy. Co., Detroit, Mich.
Taylor-Hall Welding Corp., Worcester, Mass.
United Mchy. & Supply Co., St. Louis.
Wachs-Gregg & Co., 117 N. Jefferson St., Chicago
Wertman Mchy. Co., M. A., Cleveland, O.
West Penn Machinery Co., Pittsburgh, Pa.
White Machy. Co., A. D., 108 N. Jefferson St., Chicago
Wigglesworth Mchy. Co., Boston, Mass.
Winterer, Herman L., Philadelphia, Pa.

Vises, Drilling Machine
Armstrong-Blum Mfg. Co., 341 N. Francisco Av., Chicago
Armstrong Bros. Tool Co., 308 N. Francisco Av., Chicago
Hagen, H. J., 109 Lafayette St., New York
Martin Tool & Die Works, J. E., Springfield, O.
Plunkat Mchc. Co., J. E., 215 N. Ada, Chgo.

Vises, Machinists'
Plunkat Mchc. Co., J. E., 215 N. Ada, Chgo.
Western Tool & Mfg. Co., Springfield, O.

Vises, Milling Machine
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Hartford Special Mchy. Co., Hartford, Conn.
Plunkat Mchc. Co., J. E., 215 N. Ada, Chgo.
Stevens Inc., John B., 806 Hudson Street, New York

Vises, Shaper
Plunkat Mchc. Co., J. E., 215 N. Ada, Chgo.

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Lenney Mchc. & Mfg. Co., Warren, Ohio

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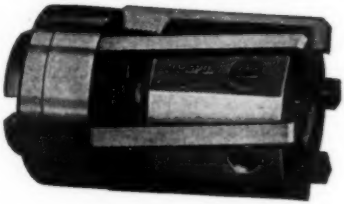

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Lathe, Stark No. 4 bench, c. s., c. r.
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1½" Landis double head.
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2½" to 8" Williams.

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3-spindle Avey.

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36"x15' American.

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No. 2 Ohio single pulley drive.
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No. 3 Brown & Sharpe universal.
No. 5-B Brown & Sharpe.

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No. 3 Toledo.
Stiles & Parker drawing.
No. 37 Niagara straight back.
No. 24 Toledo cam drawing.
No. 723 Toledo cam drawing.
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36" Bertsch for No. 16, foot power.

SCREW AND TURRET MACHINES.

No. 2 Warner & Swasey hollow hex.
No. 3-A Warner & Swasey.
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32" Cincinnati shaper.
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Hammer, 600-lb. steam.
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Blowers, Root No. ½, 500 c. p. m.
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Boring mill, 30" King; and Bullard.
Boring mill, 2½" bar W. & S. horiz.
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Brake, 8' x12 ga. power, Chicago.
Brakes, hand, 10', for 18 ga.
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Chuck, Walker magnetic, 6" diam.
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Drills, multiple 10 and 18 spindle.
Drills, No. 14 Silver, hand post.
Drill, 24" Rockford, g. f. taper att.
Drill, radial, 5' Western, g.b., m. d.
Drill, senaitive radial, 3' Amer. t.a.
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Forging mche., 3½" Ajax, steel bed.
Forging mche., 3" Acme steel bed.
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Furnaces, oil tempering,10"x10"x10".
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Gear hobber 12" S-S "TRO".
Gear and pinion cutter, No. 3 Sloan.
Gear speed reducer, 3 h. p. 50:1.
Grinder, No. 1½ Landis universal.
Grinder, No. 1 LaSalle surface.
Grinder, 18-D. Rowbottom, o.h.b.b.
Grinder, No. 17 Besly 30" double.
Grinders, Nos. 1 & 2 Norton, t. & c.
Hack saw, 6x6" Marvel, motor drive.
Hack saw, 6"x6", 12"x12" Racine.
Hack saw, Peerless, 6" univ. shaping
Ham., 250 lb. L. Giant beltpwr.new.
Ham.,400 lb.No.10 Beaud.,pwr.b.d.
Hammer, 800 lb. Erie stm. forg.,s.f.
Hammer, 1000 lb.Chbg.,steam drop.
Hoists, chain, 1 to 8-tons capacity.
Keyseaters, No. 00 & No. 2 Baker.
Keyway cutter,24" Morton,cap.2½".
Lathe, jewelers, with collets.
Lathe, 12"x8' Reed-Prentice geared head, belted m. d.
Lathe, 14"x6' Hendey q. c. g., pan,
Lathe, 15"x6' South Bend, chuck.
Lathes, 16"x8' Rockford, q.c.g., r.b.
Lathe, 16"x8' S. Bend, 2 cks. & c/s.
Lathe, 16"x10' L. & S. geared head motor leg.
Lathe, 18"x8' L. & S.sel.hd.m.d.t.a.
Lathe, 21"x8' LeBlond, q. c. g., d. b. g., 1½" h. s., chuck.
Lathe, 26"x12' 10" Wickes, semi-q. c. g.; h. s., chuck, c/s.
Miller,vertical, No. 3 Becker, cone.
Miller, No. 28 Ohio pl. auto. feeds.
Miller plain No. 3 B. & S.
Miller, plain No. 2 & 2A Rockford.
Miller, No. 3 LeBlond, plain.
Miller, universal No. 4 B. & S.
Miller, auto. No. 2-M P. & J., s p.d.
Motors, ½, 2, 5, 7½ h. p. 3/60/220 v.
Motor, 5 h. p. 500 v. d. c., 1500 rev.
Motor, 10 h. p. a. c., 2/60/220/1740.
Motor, 20 h.p. 220 v.d.c.,350/1050 rev.
Motor, 25 h p.slip rg., 3/60/220/1160.
Planer, 24"x24"x6' Gray, l-head.
Planer, 30"x10' W. & P., 2-heads.
Press, 76-D Pexto, d. c., 10,000 lbs.
Press, hyd. 50-ton, Watson-Stillman
Press, No. 14 Toledo horn.
Press, F-162 Ferracute, foot power.
Presses, No. 3 Bliss, punch type.
Presses, o.b.i., No. 1 Toledo.
Press, Nos. 19, 21, 22 Bliss o. b. i.
Pr., o.b.i. No. 1 VKV; No.1 Sidney.
Press, o.b.i. No. 3 Niagara, 1½" str.
Press, C-3 Ferracute, o. b. i., plain.
Presses,foot,No.87 Bliss,pendulum.
Press, No. 6 Perkins, s. s., 4000 lbs.
Presses, No. 87 Niagara, screw.
Punch, s e., Badger, 7" thrt., 2"x2".
Punch, No. 12 Niagara hand power, 10" tht; wt. 140 lbs.
Punch, Rapid, 26" tht., 1"x½", m. d.
Punch & stake riveter, No. 123-C. Toledo boilermakers.
Riveter, Grant No. 101, 5/16" cap., for motor drive.
Riveters, I-AA, 3-A, 5½-B, hi. speed.
Rolls, hand, 30"x1½".
Screw machine, No. 0G B. & S. automatic, belted motor drive,
Shaper, 7" Rhodes, vert. ram. m. d.
Shaper, 16", Cin., b. g., crank.
Shaper, 24" Milwaukee b. g., crank.
Shaper, 25" S & M., b.g., crk., A-1.
Shear, 42"x8" Niagara, 18" gap.
Shears, ⅜" & ⅜" Lennox, throatless.
Shear, foot, 30"x20 gauge.
Shear, foot, 36"x16 gauge.
Shear, rotary, 12" thrt., cap. 10 ga.
Shear, rotary, 36" throat cap. 7/32".
Shear, rotary, 16 ga., Yoder, 24" thr.
Shear, squaring, 8'x14 ga. power.
Shear, squaring, 60"x14 ga. Canton.
Shear, 10'x16 ga. Ohl power.
Shear, squaring, 30"x18 ga., F. & P.
Slotter, 15" Dill, for motor drive.
Spin. lathe,No.6 Bliss,c.r.,tailstock.
Tappers, No. 2 Garvin, vertical.
Thread, mch.,⅜" Geometric,s.s.fl.st.
Turret lathe, 26"x7½" h. s., Libby.

FOR SALE BY

Herman L. Winterer, - 947-953 N. Front St., Philadelphia, Pa.

Boring mills, Bement-Miles horiz. 4-½" bar with revolving table	$2,200.
Boring mill, 60" Niles car wheel	250.
Boring lathe, Johnson journal bearing boring type (2) each	125.
Drill press, 48" Almond, sensitive radial, post type	125.
Drill press, 24" Foote-Burt, heavy duty	300.
Drill press, 24" Snyder, sliding head	125.
Lathe, 22½"x14' Johnson, d. b. g., q. c. g., taper attachment	1,200.
Lathe, 32"x12' Pittsburgh, heavy duty, d. b. g., q. c. g	1,000.
Lathe, 27"x12' Bullard, d. b. g., q. c. g.	500.
Lathe, 26"x11' Wickes, d. b. g., q. c. g.	550.
Lathe, 28"x10' Niles, d. b. g., q. c. g	500.
Lathe, 18"x10' Reed, p. c. g.	160.
Lathe, 16"x 8' Hendey, p. c. g.	175.
Lathe, 14"x 6' American, q. c. g., taper attachment	250.
Milling machine, No. 3 Becker, universal with vertical attachment	700.
Milling machine, No. 15 Garvin	225.
Moulding machines, Tabor, 14"x21"—13" cylinder (7) each	100.
Planer, 48"x48"x12' Gray, 2 heads	1,450.
Presses, Waterbury-Farrel D. A. 29"-5" str., wt. 26000 lb. new (3) ea.	1,000.
Punch, Cleveland multiple, 72"-15" throat, max. cap. 96" long	1,600.
Punch presses, all sizes (15) steam pumps, air compressors & engines.	
Riveter, air, 6' gap Allen, capacity 1¼" rivets	400.
Riveter, air, 6' gap Allen, capacity ¾" rivets	200.
Shaper, 16" Smith & Mills, with vise	200.
Turret lathe, 3x36" Pratt & Whitney, hollow hex, d. b. g., q. c. g	600.
Turret lathe, 3½"x28" Pond, triangular pattern	500.

Many additional tools. Send for complete catalog.

FOR SALE BY

A. D. White Machinery Co., 108 N. Jefferson St., Chicago, Ill.

Automatic, National-Acme 9/16", 5-spindle.
Automatic, Gridley 4-spindle, 1¼", belt drive.
Automatic, Gridley 4-spindle, 1¼" and 2", motor drive.
Automatic, ¾"-4" Cleveland model A (2).
Automatic, ¾" 1¼" Cleveland model A (2).
Bolt cutters, 3½" and 4" Acme, single head.
Drills, 3-spindle Allen and Henry & Wright ball bearing.
Drills, 6 spindle Allen ball bearing, motor drive (2).
Drills, 26" Barnes back geared, sliding head (2).
Drills, 36" Cincinnati back geared, sliding head, tapping attachment.
Grinder, 6"x32" Norton plain cylindrical, very good.
Grinder, 14"x72" Norton plain cylindrical.
Grinder, Walker universal tool with equipment.
Hammer, 60 lb. Bradley cushion helve.
Hammer, 200 lb. Miner & Peck jewelers drop.
Miller, No. 1½B Kearney & Trecker, with rotary table.
Miller, No. 3H LeBlond plain, vertical attachment.
Miller, No. 2B Kearney & Trecker plain, vertical attachment.
Miller, No. 6 Becker vertical rotary, table.
Miller, No. 24 Cincinnati automatic, motor drive.
Miller, No. 4—36" Cincinnati hydromatic, motor drive.
Presses, No 2 and No. 3 Consolidated inclinables.
Press, No 78½, Bliss straight side tie rod frame, 12" stroke.
Press, No. 426½ Hamilton double crank, 8" stroke.
Punch and shear, Pels combination punch, shear and bar cutter.
Screw machine, hand, No. Foster, plain and friction head.
Screw machine, hand, 1" capacity, Warner & Swasey, plain head.
Shear, 124" Ohl 3/16" capacity, 5 h. p., a. c. motor.

Lots of others—keyseaters, engine lathes, shapers, planers.

USED AND REBUILT MACHINERY

FOR SALE BY

West Penn Machinery Company

1208 House Building, - - - Pittsburgh, Pa.

Automatics, 14" Fay.
Automatic, No. 0 Brown & S. b. d.
Automatic, No. 55 National Acme.
Air compressors, 30 to 1500 cu. ft.
Bender, No. 6-C Wallace, m. d.
Blowers, Nos. 3 & 4 North Amer.
Bolt cutter, 2½" Acme, sgl. hd. m. d.
Bolt cutter, 1½" Landis, dbl. head.
Bolt cutter, 1" Landis, 3hds., m. d.
Boring mill, 10'-16' Betts, 2 hds. m. d.
Bor. mill, hor., No 1 Cleve. 3½" bar.
Boring mill, floor type, 5½" D. & H.
Brake, 5' press type, 10 gauge.
Brake, 6' hand, 16 gauge.
Brake, 8' D. & K. 10 ga. box & pan.
Brake, 10' Dreis & K. 3/16", m. d.
Bulldozers, Nos. 2, 4, 6, 28, 29 & 30.
Die threader, Smalley General, dies.
Dieing mches., 25 & 50 ton H. & W.
Drill, 21" Rockford, tap. att. m. d.
Drill, No. 3 Defiance, No. 5 M. T. m. d
Drill, radial, 2½' Fosdick, t. a., b. d.
Drill, radial, 4' Prentice, t. a., b. d.
Drill, radial, 6' Dreses, s. p. d.
Drill, radial, 6' American, universal.
Flanger, McCabe, 4" capacity, dies.
Gear cutters, 11", 24" & 36" Gleason.
Gear cutter, spur, 36"x10" Newark.
Gear cutter, 72" Gould & Eberhardt.
Gear hobber, 6" Schuchardt & Sch.
Gear hobber, 18" Gould & E. m. d.
Gear tester, 18" Gleason, bevel.
Grinder, rad., 14" M. & D., m. d.
Grinder, internal, No. 70 Heald.
Grinder, surface, No. 16 Blanchard.
Grinder, surface, 14" Arter.
Grinder, tool & cut., No. 2 Walker.
Hammer, Blacker, power, 35-lbs.
Hammer, 80-lb. Bradley, cush. helve.
Hammer, 200-lb. Bradley, compact.
Hammers, Nos 3-B, 4-B, 4-N Nazel.
Hammers, steam, 600 lb. to 6000 lbs.
Jacks, 35-ton Barrett, ball bearing.
Lathe, 16"x6' Hendey q. c. g.
Lathe, 18"x8' Hendey grd. hd., m. d.
Lathe, 20"x8' Hendey, tie bar, t. a.
Lathe, 24"x16' Bridgeford, grd. hd.
Lathe, 48"x26' Bridgeford, g. hd. m. d.
Lathe, turret, No. 6 Warner & S.
Lathe, turret, No. 8 Warner & S.
Lathe, turret, 24" Steinle, 6¾" hole.
Lathe, turret, 24" Libby, 7¾" hole.
Lysholm tables, 72"x30'.
Miller, duplex, 24" Cincinnati auto.
Miller, plain, No. 2 Cincinnatis. p. d.
Miller, plain, No. 2-A Milwaukee.
Miller, Ingersoll, 48"x48"x20' adj. rail.
Miller, univ., No 2 Kempsmith, b. d.
Miller, univ., No. 3 LeBlond, b. d.
Miller, vert. No. 5 Brown & Sharpe.
Nut tapper, 6-sp. Acme semi-auto.
Pipe mchs., 8" Oster, 8" Williams.
Pipe machine, 2" Landis
Planer, 30"x30"x10' Woodward & P.
Planer, 48"x48"x12' D. & H. m. d.
Planer, o. s., 36"x36"x16' D. & H.
Planer, rotary, 48" Niles, m. d.
Presses, arbor, Nos. 7, 17 Greenerd.
Press, o. b. i. Ferracute Cl, 3" stroke.
Press, o. b. i. No. 21 Bliss, b. d.
Press, hydraulic, 1,000 ton United.
Press, s. s., 13"x19½", 2" stroke.
Press, No. 75 Toledo, 1½" stroke.
Press, No. 78½ Toledo, t. r. 10" str.
Press, No. 92-B Toledo, d. c. 2½" str.
Press, No. 12-E Bliss, 54"x144", 10" str.
Press, screw, No. 87 Niagara.
Press, screw, No. 159½ Toledo.
Press, wheel, 200-ton Caldwell.
Press, wheel, 300-ton Wood, 60".
Punch, hor., Cleveland, 1" thru 1".
Punch, hand, Shatz, bar and angle.
Punch & sh. No. 6 L. & A. ½" thru ¾".
Punch & sh., No 24-U Buffalo m. d.
Punch, multiple, No. 5 H. & J. 16'.
Riveters, air, hammer, spinning.
Rolls, angle, 4"x4"x¾" W. & W.
Rolls, bending, 8'x14 ga. hand.
Rolls, bending, 12'x¾" H. & J. d. e.
Roller, thread, No. 50 Waterb.-Far.
Sand blast, Pangborn, 96", ER-1.
Saw, band, metal No. 2 Klem, m. d.
Saw, cold, 48" Newton, m. d.
Saw, frict. Model 1-A Hunter, 24".
Saw, friction, Nos. 2 & 3 Ryerson.
Saw, hack, No. 5 Marvel, b. d.
Saw, univ., Peerless, 6x6", m. d.
Shapers, 16", 20", 24" & 36" G. & E.
Shaper, 20" Ohio crank, vise, b. d.
Shaper, 24" Potter & Johnston, b. d.
Shaper, 24" Flather, motor drive.
Shaper, 48" Morton, draw cut.
Shear, angle, 6"x6"x¾" Cleveland.
Shear, alligator, 1½", 2", 3" & 4".
Shear, bevel, Lennox ¾".
Shear, gang slitter, No. 235-A Bliss.
Shear, guil. No. 3 H. & J. 2½" sq.
Shear, guil. No. 5 Cleveland, 3½" sq.
Shear, rotary, ½" Ryerson.
Shear, sq., 20"x18 ga. Bliss power.
Shear, square, 36"x16 ga. Pexto.
Shear, sq. 8'x16 ga. Ohl.
Shear, 54"x¾" Garrison, 24" gap, m. d.
Shear, sq. 12'x14 ga. Kutscheid.
Shear, 12'x¾" Wheeling, 31" gap, m. d.
Straightener, 60" Nat. 14 ga. 17 rolls.
Straightener, H. & J. 48"x¾" 8 rolls.
Straight'r, 48" United, 16 ga. 13 rolls.
Straightener, Phila., 7'x¾", 8-rolls.
Straightner, 1½" round Abramson.
Straightener, 4" round Abramson.
Straightener, No. 4 H. & J. 15" beams.
Swaging mche., No. 5-A Standard.
Testing machines, 4000 & 100,000-lb.
Testing mche., 100,000 lb. Olsen, m. d.
Tumbling barrel, 18"x36", b. d.
Upsetters, 1" to 6".
Welders, spot and butt.

FOR SALE BY

Strafer Machinery Company,

14th and Provost St., - - - Jersey City, N. J.

BORING MILLS

100" Sellers s. p. d. rapid traverse.
96" Cincinnati s. p. d. rapid traverse.
72" Sellers rapid traverse. m. d.
51" N.-B.-P. single pulley drive.

GEAR CUTTERS

No. 6 Cincinnati 60"x20" m. d.
No. 5A. Lees-Bradner a. c., m. d.

GRINDERS.

16"x52" Landis self-contained.
16"x48" Landis crankshaft.
6"x32" Norton, overhead counter.
No. 8 Badger disc, 36" wheel.

KEYSEATERS.

No. 5 Mitts & Merrill belt drive.
No. 3 Mitts & Merrill 16" stroke.

LATHES.

42"—70"x16' Fay & Scott slide gap.
24"x18' Prentice g. h.
42"x14' Bridgeford geared head.
21" Gisholt turret lathe.

PLANERS.

48"x48"x16' Pond 4 heads, b. d.
36" D. & H. open side 1 head.
30"x30"x14' Whitcomb, 2-heads.
30"x30"x10' Whitcomb, 2 heads m.d.

PRESSES.

400 ton W. S. hydraulic 73"x20'.
No. 3½ Bliss double crank, 44".
No. 4½ Bliss double crank, 32".
Ferracute s. r. g. 103 geared.
No 87 Zeh & Hahneman grd. arch.
S-134 Ferracute 82" bet. uprights.

MISCELLANEOUS.

Beading machine, Bliss.
Bending rolls, 10'x8" drop end, m.d.
Boring bars, portable, 4"x8'.
Caterpillar ditcher, B. & G. 24"x8'.
Chuck jaws set for boring mill.
Compressor, I.-R. 8"x6" horiz. m.d.
Pipe machine, 6" Saunders with dies.
Wire straightener, core, to 5/16".

FOR SALE BY

Norton-Broadway Mchy. Co., Sixth & Baymiller Sts., Cincinnati, O.

BORING MILLS.

24" and 36" Bullard New Era.
36" and 51" Niles, 2 heads.
24" Cleveland horiz., rotary table.

DRILLS AND RADIALS

6' American, gear box, sgl. pulley.
6' American tr. purp., encl. head.
4' and 4½' Morris, single pulley.
No. 5 Fox multiple spindle, 32"x45".
No. 310 Baker heavy duty.

LATHES.

60"x16' New Haven.
36"x22' New Haven, blocks to 44".
30"x14' Prentice q c.
28"x48"x10' McCabe double spindle.
21"x10' LeBlond, q. c.
19"x12' Sidney, q. c.
18"x8' Mueller, q. c.
17"x8' LeBlond, q. c.
13"x5½' Willard, geared head.
14"x6' Bradford, q. c.

MILLING MACHINES.

No. 2 Cincinnati univ., cone.
No. 2 Cinti. vertical, single pulley.
No. 4 Cinti. vertical, single pulley.
No. 3 Cincinnati plain single pulley.
No. 5 Becker-Brainard, cone.
No. 4 Brown & Sharpe plain, late.

PLANERS AND SHAPERS.

26"x26"x10' Gray, 1 head.
36"x12' D. & H. openside, 3 heads.
48"x10' Helmer, 4 heads.
36"x16' Gray, 2 heads, fact'y rebuilt.
32"x20' American, 2 heads, $350.
34" Gould & Eberhardt, b. g.
24" Potter & Johnston, b. g.
16" Gould & Eberhardt, b. g.

MISCELLANEOUS.

Automatic, No. 2 Brown & Sharpe.
Grinder, B. & S., planer type.
Grinder, No. 1½ Cinti. tool & cutter.
Grinder, Reed surface.
Pipe machines, 4", 6" and 12".
Presses, No. 152 Toledo dbl. crank, 13,000 lbs.
Shear, 8' Bertsch power gap, 14 ga.
Shear, 52" Niagara pwr., No. 10 ga.
Slotter, 20" Dill, motor drive.
Turret lathes, 6" Gisholt, motor dr.
Welders, spot, No. 5 Toledo & Thompson.

USED AND REBUILT MACHINERY

FOR SALE BY

Taylor-Hall Welding Corporation, 99 Hope Ave., Worcester, Mass.

WELDERS

Taylor-Winfield motor drive 7½ k.w. spot welder.
Taylor D—36-4, 40 k.w. spot welder.
Thomson 35 k. w. spot welder.
Taylor-Winfield 2 k. w. spot welder.
Toledo 8B butt welder, cap. ⅜".
National 11-A butt welder, cap. 2".
Toledo No. 6 butt welder, cap. 1".
National 15-A butt welder, cap. 2½".
Thomson 2-C butt welder, cap. ¾".
Thomson 2-A auto. butt welder, capacity ½".
Federal 4-A butt welder, cap. ¼".

New machine guarantee with every welder.

FOR SALE BY

Scott-Bansbach Machinery Co., 4607 West 20th St., Chicago, Ill.

Automatic screw machines, No. 00 B. & S., ser. nos. 5152 & 5232, ea...$	400.
Automatic screw machine, No. 0 B. & S., serial no. 3830	325.
Auto. screw machs. No. 0 B. & S. nos., 3340, 3495, 3831, slotting att. each	450.
Automatic screw mche., No. 0 B. & S. turret former, serial no 3123	200.
Automatic screw machine, 1½" Gridley 4 spindle model F	500.
Automatic screw machine, 2¼-3" Cleveland model A, square pan	500.
Automatic screw machine, 2¼-3" Cleveland model A, square pan	500.
Drill, 4-spindle L. & G., h. s., b. b., tapping attachment on 1 spindle; p. f. 2 spindles, 1 plain spindle	700.
Gear hobber, S. & S. No. 0, capacity 12"x10"x6½ d. p	300.
Gear cutter, B. & S. No. 3 28" for spur gears	300.
Grinder, No. 190 Greenfield universal cutter and tool, complete	150.
Grinder, No. 1 Norton universal cutter and tool, power feed	250.
Grinder, No. 2 Brown & Sharpe automatic surface, magnetic chucks	450.
Grinder, Capitol internal, capacity 3/16" to 2"x2"	150.
Grinder, No. 7 Gardner 30", b. b. with press, belted motor drive	325.
Lathe, 16"x6' LeBlond quick change	450.
Lathe, 18"x6' Hendey quick change, taper attachment serial no 19189	600.
Lathe, 18"x7' South Bend, q. c., a. c., motor drive and chucks	600.
Lathe, 18"x9' Chard semi-quick change gear	425.
Lathe, 18"x8' Davis heavy duty, q. c. g., d. b. g., 14" 4 j. w chuck	550.
Lathe, 30"x13' H. S. & G. heavy duty, q. c., d. b. g. 16,000 lbs.	1,250.
Miller, No. 3 Cincinnati, cone drive, old style	350.
Miller, No. 3 Kempsmith, cone drive, with c/s and vise	600.
Miller, No. 1 Garvin universal, fully equipped	450.
Miller, Cleveland universal, No. 1 g. h., fully equipped	750.
Miller, No. 2 MU. Garvin universal, fully equipped	550.
Miller, Briggs, G. & E. manufacturing, 16"	150.
Miller, No 5 Becker vertical, no rotary	525.
Miller, No. 7 Becker, Lincoln type	125.
Miller, No. 21 Garvin power feed, oil pump	150.
Miller, Hendey, Lincoln type	100.
Miller, No. 12 Brown & Sharpe production type	150.
Miller, Ingersoll slab, 42"x36"x9'	1,000.
Planer, 24x24x8 Fitchburg, 1 head	200.
Planer, 36"x36"x12' Cincinnati with 2 heads	1,200.
Press, No. 30A, Perkins o. b. i. 2" stroke, 1500 lbs.	150.
Press, No. 4, Niagara o. b. i. 2" stroke, 1700 lbs.	200.
Press, No. 4 Rockford o. b. i. punch, 2½" stroke, 3500 lbs.	375.
Press brake, 10' Ohl power, No. 10 gauge	1,500.
Screw machine, No. 1, B. & O. plain head, 13/16" capacity	225.
Separator, Curtis oil, 1 bushel	275.
Separator, oil, American 1½ bushel	300.
Shaper, 20" Cincinnati, crank, back geared, vise and c/s	540.
Shaper, 20" Columbia back geared crank	750.
Shear, 42" Niagara foot power, No. 14 gauge capacity	100.
Turret lathe, 24x10" Milholland, for chuck and bar work	650.
Turret lathe, 24"x36" Acme with chucking equipment	500.
Turret lathe, 24" Steinle, 4" hole, side carriage	300.

FOR SALE BY

The E. L. Easley Machinery Co.

Telephone Randolph 9191 **551 W. Washington Blvd., Chicago**

Bolt cutter, ½ to 2½" Landis, Acme.
Bor. mill, 24" & 42" Bullard New Era
Drill, Avey, Allen, Leland-Gifford.
Grinder, No. 1 LeBlond universal.
Hammer, No. 5A High Speed rivet.
Hobber, Nos. 3 & 12 Barber-Colman
Lathe, 14"x8' American m. d.
Lathe, 20"x16' Sidney.
Lathe, 25"x12' Sidney.
Lathe, 33"x16' Le Blond, geared hd.
Miller, Nos. 2 & 3 Cincinnati plain.
Miller, No. 2 Ohio heavy universal.
Miller, No. 2½-B K. & T. vertical.
Pipe mche., 6" Landis, 6" E. C. & B.
Planer, 16' Niles plate.
Planer, 22"x22"x4' Whitcomb.
Planer, 36"x36"x14' Chandler.
Press brake, 10'-6' Ohl. 10 ga. cap.
Presses, No. 165-B Consolidated gd.
Presses, Nos. 19 and 21½ Bliss.
Presses, No. 5 Bliss-Consolid. o.b.i.
Radial, 2½' & 6' Am. 3' & 5' Cin-Bick
Saws, 8"x8" Peerless; No. 12B Higley
Screw mchs., Nos. 5 & 6 Wood tilted
Screw mchs., No. 4 Warner & S.
Shapers, 20" S. & M., 24" G. & E.
Shapers, 32" Columbia.
Shear, 42" Stoll, 16 ga.
Shears, 62" Niagara 14 ga., m. d.
Turret lathe, No. 1-B Foster chuck.

FOR SALE BY

Davis Machinery Exchange, 1-3-5 So. St. Clair St., Toledo, Ohio

Bolt threader, ¾" Landis dbl. head.
Boring mill, 24" Bullard vertical, new era head.
Drill, 3' Bickford radial, g.b., s.p.d.
Drill, 3-spindle Allen, h. s. b. b.
Drill, Henry & Wright, h. s. b. b.
Drill, Sipp h. s. b. b. (2).
Drill, No. 2 Avey, h. s. b. b.
Drill, 3-spindle, L. & G. h. s. b. b.
Drill, Pierle, h. s. b. b.
Drill, 24" Cincinnati s. h., b. g., p.f.
Drill, 6-sp. Nat. Acme horizontal.
Drill, 6-spdl. H. & W., h. s., b. b.
Grinder, No. 2 Gardner disc, comp.
Grinder, No. 4 Gardner disc comp.
Grinder, No. 4 Gardner disc, 15 h. p. motor drive.
Grinder, No. 4 Oliver drill pointer.
Grinder, No. 14 Brown & S., plain.
Grinder, 10"x36" Landis pl. self-con.
Grinder, No 60 Heald cylinder.
Grinder, No. 2 Oakley univ., comp.
Hack saws, 6x6 Racine & Peerless.
Keyseater, No. 0 Mitts & Merrill.
Keyseater, No 6 Baker.
Keyseater, No. 3-A Mitts & Merrill.
Lathe, 19"x10" Sidney q. c. g.
Lathes, 14"x6', 16"x6', 16"x8' Hendey q.c.g., taper and collet attachment.
Lathe, 16"x8' Walcott q. c. g. t. att.
Lathe, 16"x8' South Bend, std. c. g.
Lathe, 16"x8' Oliver q. c. g., engine.
Lathe, engine, 18"x7' Lehmann, q. c. g., chuck.
Lathe, 18"x10' American q. c. g., taper and relieving attachments.
Lathe, 18"x8' American q. c. g.
Mill, No. 2 LeBlond univ. index & vertical head. complete.
Mill, No. 1 Kempsmith universal.
Mill, No. 1½ Becker-Brainard universal, complete.
Mill, No. 3 LeBlond, univ., comp.
Mills, No. 1½, No. 2 and No. 3 Cincinnati plain, all geared feeds.
Mill, No. 2 Kempsmith plain.
Mill, No. 0 Steptoe, p. f.
Mill, A. B. Becker vertical.
Mill, Model C. Becker vertical.
Mill, No. 3 B. & S. vertical, s. p. d.
Mill, No. 6 Whitney hand, (6).
Mill, No. 12 B. & S. production, (2).
Miller, No. 1 Toledo b. b. hand (2).
Milling and drilling machine, No. 1½ Knight.
Nibbler, metal No. 1 Campbell.
Oil groover, Fisher No. 1.
Press, No. 1 Toledo o. b. i. flywheel.
Press, No. 35 Swaine o. b. i. flywheel.
Press, No. 3 Bliss, s. b., flywheel.
Press, No. 4 Amer. Can type P.
Press, No. 8 Bliss, bench type (5).
Press, No. 81 Consolidated, bench.
Press, 40 ton Manhattan screw
Screw machine, No. 6 Warner & S.
Screw machine, No. 7 Foster.
Screw machine, No. 4 Foster.
Screw mche., ¾" Cleveland Model A.
Screw mche., 1½" Cleveland Model A.
Shaper, 16" Whipp crank, s. g.
Shaper, 16" & 20" Cin. crank b. g.
Shaper, 16" & 20" Steptoe crank b.g.
Shaper, 20" Ohio crank, b. g.
Shaper, 24" Smith & M. crank. s.p.d.
Shaper, 24" Walcott crank, b. g.
Tappers, No. 1 & No. 2 X Garvin vertical (5).
Threader, ¾" Geometric.

FOR SALE BY

Wigglesworth Machinery Company

170 Summer Street, - - - - Boston, Mass.

Blocks, Johansson blocks, like new.
Boring mill, No. 0 Giddings & Lewis, 3½" bar.
Boring mill, No. 25 Landis.
Boring mill, 144" Niles.
Boring mill, 96" Niles.
Boring mill, 84" Bullard.
Boring mill, 42" Gisholt.
Boring mill, 42" Bullard New Era.
Boring mill, 36" Bullard New Era.
Boring mill, 24" Bullard, rap. prod.
Drill, 4-spindle Avey.
Grinder, No. 7 Gardner, like new.
Grinder, No. 27 Blanchard, 60" chk.
Grinder, No. 3 Bryant semi-auto. hole.
Hammer, 2000 and 3000 lb. new board drop, ½ price.
Hammer, 6000 lb. Sellers, steam.
Lathes, Stark, Ames bench (4).
Lathe, 13"x30" Model B, P. & W.
Lathe, 13"x8' LeBlond, motor leg.
Lathe, 14"x 6' Hendey, taper.
Miller, No. 1 B. & S. plain.
Miller, No. 2 Cincinnati universal.
Miller, No. 2 Brown & Sharpe.
Miller, 24" Cincinnati automatic.
Miller, 60"x12' Newton planer type slab.
Miller, 24"x12' Ingersoll slab.
Planer, 84"x56"x16' Gray, 4 heads.
Planer, 72"x60"x16' Detrick & Harvey open side, like new.
Press, No. E-51 Ferracute knuckle joint.
Press, No. 3-A Bliss.
Radials. 3' American & Cincinnati-Bickford.
Screw machine, No. 2G B. & S.
Shaper, 15" Potter & Johnston.
Shaper, 16" Gould & Eberhardt.
Shaper, 16" Steptoe.
Shaper, 20" Milwaukee.
Shaper, 24" Stockbridge.
Shaper, 24" Milwaukee.
Slotter, 36" Newton.
Turret lathe, No. 4 Warner & S. universal, geared head.

FOR SALE BY

Brownell Machinery Co., - 150 Pine St., Providence, R. I.

BORING MILLS.

42" Bullard New Era. vertical turret.
36" Bullard New Era, vertical turret.
4" bar Detrick & Harvey horizontal.

DRILLS.

3' Cincinnati-Bickford radials, s.p.d.
3½' American radial, s. p. d.
3' Prentice radial, cone.
28" Snyder upright, sliding head.

GEAR CUTTERS AND GRINDERS.

No. 13 Brown & Sharpe gear cutter, spur & bevel.
No. 3 Brown & S., spur 26"x8".
No. 2 Brown & S. surface grinder.
Type "C" Diamond surface 24"x8".
Garvin hand feed surface (3).
No. 6 Diamond disc, 18".
20" Blount wet tool.
No. 13 B.& S. universal & tool.

LATHES.

14"x6' Hendey tool room.
24"x27' Fitchburg.
30"x20' Fitchburg.
12"x 5' Blount speed.

MILLING MACHINES

No. 2 Kempsmith universal.
Model "AB" Becker vertical.
No. 3 Cincinnati vertical, m. d.
No. 13-B B. & S. manufacturing.
No. 0 Brown & Sharpe plain.
No. 24 Brown & S. plain, 60" feed.

SCREW MACHINES & TURRET LATHES.

No. 4 W. & S. grd. friction hd., 14"
3"x36" Jones & Lamson flat turret.
Nos. 00, 0, & 2 B. & S. automatics.

SHAPERS AND PLANERS

20" Cincinnati motor driven.
16" Sellew tool room.
16" Garvin plain.
15" Hendey friction.
24"x24"x6' Putnam planer.
20"x20'x4' Fitchburg.

MISCELLANEOUS.

Blower, No. 8 Boland positive pres.
Hammer, drop, No. 6 Miner & Peck, 900 lbs.
Hammer, power forge, 80 lbs. Bradley c. h.
Hammering mch., No. 2 Langelier.
Rolling mill, 5"x8" Ruesch.
Screw press, No. 3 Standard hand.
Slotter, Bement Miles 12" vertical.
Tapping machine, No. 1 Garvin vert.

FOR SALE BY

The O'Brien Machinery Co., 113 N. Third St., Philadelphia, Pa.

Automatic, 1¾" Cone, 4-spindle.
Automatic, 2½" F Gridley, 4-spdl.
Bending roll, 25' H & J. ½" cap.
Column facer, 14" Espen-Lucas.
Drill, 4' Cincinnati-Bickford, radial.
Hammer, 2000 lbs Chambersburg.
Hammer, 1100 lb. N.-B.-P sgl. fr.
Lathe, 36"—60"x32' McCabe, belt.
Lathe, 48"x16' Lodge & Shipley.
Miller, No. 3B Brown & S plain.
Planer, 30"x30"x6' Detrick & H.
Punch and shear, 24" Southwark, arch. jaw, cap. ⅝"x⅜".
Shaper, 24" Gould & Eberhardt.
Shear, 8' Covington squaring, gap pattern, ½" capacity.

FOR SALE BY

M. A. Wertman Machinery Co., 427 Penton Bldg., Cleveland, Ohio

Brake, Robinson power, 8' 16 gauge, good as new.
Drill, Allen 4-spindle, power feed, excellent late machine.
Gang slitter, Yoder G-36" lot of cutters and spacing collars, fine condition.
Headers, Manville No. 2 s. d. d. s., excellent condition. (2).
Lathe, Rivett No. 505N collets and equipment, a precision tool.
Lathe, Cincinnati 16"x8' q. c. g. fine condition, very low price.
Lathe, Hendey 12"x8' yoke head, late machine.
Milling machine, Kempsmith No. 5 Maximiller, latest type, nearly new.
Milling machine, Kempsmith No. 3, cone type, dbl. back gear, guaranteed.
Thread rollers, No. 20 Waterbury, automatic hopper feed, good cond. (2).
Trimmers, Manville Nos. 3 & 4 belt trimmers.
Turret lathe, Bardons & Oliver, No. 2 back geared and power feed.

FOR SALE BY

Brown Machinery Co., - - 2323 N. 9th St., St. Louis, Mo.

Drills: 24", 26" and 32" Barnes and Rockford; 4-spindle Moline hole hog No. 66D.
Gear hobbers, G. & E. 12" and 24".
Grinders: No. 6 Besly dbl. spindle; No. 220 Badger auto. disk; 12x30" Modern, plain s. c. c. s.; No. 12 Brown & Sharpe, universal, tool.
Hammer: 40 lb. Bradley, helve; 50 lb. Mayer upright.
Lathes, 30"x12' Blaisdell; 26"x12' Putnam, hvy. duty; 20"x12' Lodge & Shipley, q. c. g.; 18"x8' Prentice geared head; 16"x8' Lodge & Shipley q. c. g.; 16"x6' Monarch.
Millers: No. 2 Hendey-Norton, univ.; No. 3½ Fox; No. 4 Hendey Lincoln.
Press, No. 7 Zeh & Hahneman.
Punch, Cleveland C ¾ in ⅜".
Threaders: ⅜" Geometric; National 1½" double hd.; No. 734 Greenfield.

Write for prices; send us your inquiries for shop equipment and sheet metal working machinery. We have the stock.

FOR SALE BY

B. L. Saltzman - 524-26 W. Van Buren Street, Chicago, Ill.

Band saw, Williams, metal.
Brake, 8', 12 ga., power belt drive.
Compressors, misc. sizes.
Drill, Moline "Hole Hog", 6-spdls.
Drill, No. 216 Baker, h. s. 1½" cap.
Drill, 16" Pilton, 3-spindle.
Drill, 20" Barnes, 1 & 2-spindles.
Drill, Hamilton, 32".
Grinder, National, sliding arbor.
Grinder, No. 60 Heald, internal.
Lathes, Le Blond, q. c g.
Lathe, Fox, for brass work.
Miller, No. 25 Becker-Brainard.
Miller, No. 18 Cincinnati with dividing head and vise.
Pipe threader, Saunders, ½" to 2".
Pipe threader, No. 3 Armstong 2 to 6"
Press, No. 3 Watt-Farrell, dbl. actg.
Press, screw No. 87 Niagara.
Press, foot No. 10 Excelsior.
Punch press, No. 20-B Bliss.
Shear, pwr. sq., 8' 10 ga. 20" gap.
Shear, pwr. sq., 10' 16 ga., motor att.
Shear, pwr. 10' Geo. A. Ohl, 3/16" b.d.

60 h. p. G. E. slip-ring motors, 900 r. p. m., also induction motors 20, 15, 10, 7½, 5, 3, 2 and 1 h. p., all speeds.

USED AND REBUILT MACHINERY

FOR SALE BY

Wachs-Gregg & Co.,

Telephone: Randolph 1822 - 117 N. Jefferson St., Chicago

Boring machine, Giddings & Lewis No. 32, with a. c. motor.
Boring mill, Bullard 60".
Drill, Cincinnati Bickford 3' radial.
Drill, W. E. gang 6' radial.
Drill, Foote-Burt 24" heavy duty.
Drill, Harrington, 61 B, multiple.
Drill, Woodward & Rogers 6-spdl.
Drill, Pratt & Whitney No. 12 mult.
Fox lathe, Warner & Swasey No. 3.
Grinders, Nos. 4 and 6 Badger disc.
Grinder, No. 6 Modern internal.
Hammer, Mayer 100 lb. upright.
Lathe, Bradford 32"x18'.
Lathes, Rockford 15"x6'.
Lathe, Whitcomb-Blaisdell 18"x8'.
Milling machine, Cinn. No. 2 univ.
Milling mche., Rockford No. 0 plain
Planer, Belmer, 46"x46"x12', 3 hds.
Press, Niagara No. 5½ o. b. 1.
Press, new Swaine No. 73 dbl. crank
Screw machine, Foster No. 4.
Shaper, Cincinnati 20".
Turret lathe, Pratt & Whitney ⅝"x4½"
Turret lathe, Warner & Swasey No. 2 A, chucking machine.

FOR SALE BY

McDonald Machinery Co.,

1535 N. Broadway, St. Louis, Mo.

Air compressors, Curtis 10x10 m. d., double cyl.; DeVilbliss 8x6.
Bolt machines, Landis & Acme 1 hd., 1½" capacity.
Boring mill, Lucas No. 21 horizontal, 2½"; Woods 3".
Boring mills, 4 Bullard 42" low price.
Brake, D. & K. 6' 10 gauge, power.
Cut-off mchs., 4 Davis 6" capacity.
Drill, Moline 4-spindle and 32-spdle.
Drill, Foote-Burt 4-sp. No. 2 gang.
Drill presses, Allen and Sipp 4-spdl., h. s., b. b., power feed to spindles.
Drill, Cinti-Bi k 3½' s.p g. box rad.
Drills, Leland-G 1-sp. h.s., b.b. floor.
Drills, Sipp 1-spindle, h. s., b. b., H. & W. 2-spdl.; H. & W. 6-spdl.
Drills, 20", 24", 26 & 28" b. g., & tap.
Gear hobber, G. & E. 24".
Grinders, B. & S. No. 2 universal; B. & S. No. 2 surface, complete.
Grinders, modern internal; Blount 30", wet (3), Heald 8" mag. ck.; Landis No. 1½ int., Landis 16"x42".
Grinders, St. Louis No. 9; Modern 12"x60" safety, 10 h. p. d. c.
Grinder, Pratt & Whitney vert. surf.
Hack saws, 6x6 Racine & Peerless hi speed; Racine 8x8 h. s.
Keyseater, Mitts & Merrill No. 2.
Lathes, Hendey 14"x6' q. c. g. yoke head; Davis 22"x10' q. c. g.; Sidney 16"x6' q. c. g. LeBlond 16"x8' Whitcomb-B. 22"x8' q. c. g. Monarch 16"x8'; C. & J. 18"x8'; Superior 18"x8'; L. & S. & Cinti. 16"x6', q. c. g.; American 22"x10' q.c.g. geared hd.; American 16"x6' q. c. g.; Lehmann 18"x7' q. c. g.; 40 assorted sizes, quick and loose change gear.
Lathes, Greaves-Klusman 24"x16' standard change with chuck.
Milling machines, Van Norman No. 2 duplex; Ohio No. 20 plain. LeBlond No. 3-H; Brown & S. No. 3; B. & S. No. 3 B pl., s.p.d.; American No. 1½; Kempsmith No. 1 Cincinnati No 3; Becker No. 25 all plain; Kemp No. 3; Cin. & B. & S. No. 1½; Ohio No. 29 all universal; B & S. No. 5 vertical; Cincinnati 18" mfg; Becker No. 2-H vertical.
Milling and drilling mchs., Knight No. 1½ with power feed, vertical.
Nibbling machine, Gray 30", m. d., ⅛" cap. 1½ h. p., b. b. motor.
Pipe machine, Curtis 3", motor dr.; Merrill 6"; Curtis 2½" to 12" m. d.
Planers, Gray 28"x28"x6', 1 head; Cincinnati 36"x36"x18' 2 heads; Pond, 36"x36"x12' table, 18' bed. 2 heads; Flather 24"x24"x6'; Gray 24"x24"x6', 1 head.
Punch presses, 4 Consolidated No. 2; Federal Nos. 1, 2, 3 and 4; Bliss No. 19; 2 horn presses; Swaine No. 37; Sidney No. 2, o. b. 1.
Screw machine, Cleveland 2⅝" auto.; P. & W. No. 2½ hand; Foster No. 3 hand; Woods No. 2 tilted turret. Milholland No. 4 b.g. hand; Foster No. 7 hand b. g.; W & S. No. 1.
Slotters, P & W. 6"; N.B P. 10" vert.
Shapers, S. M. 16"; 24"; Queen City 24" back geared; G. & E. 16", b.g.; Niles traveling head; Milwaukee 16" b.g.; Walcott 20" b.g.; S. & M. 24" and 26" b. g.; Ohio 16", Cincinnati 20", b.g.; Rhodes 7"; Queen City 16" b. g.; Potter & J. 16".
Shears, 60" thrt. rotary slitting. (2).
Spot welders, 5, 7½, 10, and 20 k. w., special prices.
Square shears, Niagara 62" power. m. d. 18-ga.; Ohl 8" power 16 gauge.
Thread miller, Lees-Bradner No. 3 E.
Turret lathes, Warner & S. No. 2A.

FOR SALE BY

Knoedler Mchy. Exchange, - 23 So. Second St., Philadelphia, Pa.

Brake, 8', Geo. A. Ohl, 14 gauge capacity ..... $150.
Former, 6"x52" Bertsch power slip roll ..... 225.
Large stock of new and used, hand and power, sheet metal working machinery at very low, attractive prices. Send us your inquiries. We buy, sell and exchange.

FOR SALE BY

Interstate Machinery Co., - - 130-2 So. Clinton St., Chicago, Ill.

Beading machine, Niagara 14 ga.
Brakes, 8' 10 ga.; 8' 14 ga., 8' 18 ga.
Can making outfit for round cans.
Drills, 22" & 24" Weigel tapp. att.
Gang punch, 6' 6", overhanging type
Presses, horning, Nos. 39 & 81 Bliss.
Press, No. 5 Bliss, 108" bet. h. 10" str.
Roller die machine, 12 sets rolls.
Shear, 72" Nia. gap. 3/16" capacity.
Welder, 30 k. w. Federal spot, 220 v.

FOR SALE BY

Morey and Company, Inc., - - 410 Broome St., New York

Every machine a bargain—write us today!

Partial list

BORING MILLS

Bullard 24" vertical N. E. type.
Betts 8' and 10' vertical (2).
Universal 3½" bar horizontal.
N-B-P 4" bar table type horizontal.

MILLING MACHINES

B. & S. Nos. 2, 2B plain, (6).
Cincinnati Nos. 1½, 2, 3, 4 plain, (8).
Cincinnati No. 2 universal.
LeBlond No. 3 universal.
Cincinnati Nos. 3 & 4 vertical, (2).
Taylor & Fenn vertical.
Briggs Type "A" mfg., (8).
P. & W. 5" and 12" mfg., (2).
P. & W. 4½x12, 6x14, 6x48, 6x80, (6).
Hanson-Whitney thread.

TURRET AND SCREW MACHINES

Brown & Sharpe No. 00G.
W. & S. Nos. 2-A & 3-A univ., (2).
Acme 3½x36, (2).
J. & L. 2½x24, 3x36, (10).

FOR SALE BY

E. L. Klauber Machinery Co., 320 South Third St., St. Louis, Mo.

LATHES.

9x14 Porter-Cable (3).
15x8 Carroll-Jamieson q.c.g., d.b.g.
18"x 6' Rahn-Larmon
22"x12' Lodge & S. q. c. g., d. b. g.
24"x10' Lodge & Shipley q. c. g.
30"x14' Bradford.

SCREW MACHINES AND TURRET LATHES.

No. 0 Brown & Sharpe automatic.
No. 0 Brown & S. semi-automatic.
No. 2½ Garvin p. f. t.
1B Foster, all geared.
No. 4 Wood tilted turret g. f. h.
No. 56 National-Acme 4-spindle.

MISCELLANEOUS.

Drill presses, 50 from 10" to 34".
Grinders, Heald 8" rotary.
Miller, No. 2 Cincinnati universal.
Miller, No. 3 Carter & Hakes.
Millers, No. 0 Bristol; U. S. (4).
Presses, Nos. 33 and 31 Swaine (8).
Shaper, 16" Smith & Mills light.
Shaper, 20" G. & E. high duty, b.g.
Spot welder, 25 k. w.

USED AND REBUILT MACHINERY

FOR SALE BY

Percy M. Brotherhood & Son, - 25 Church St., New York, N. Y.

Excellent Used Machine Tools.

Planer, Pond 96x96x16', 4 heads.
Planer, Niles 120x96x30', 4 heads.
Press brake, 12' 6", capacity $\frac{3}{8}$".
Press brake, 12' 6", capacity $\frac{1}{2}$".

We have all kinds.
Many of these rebuilt.
Large number equal to new.
Advise us of requirements.

Send for our list.
Structural iron tools a specialty.

FOR SALE BY

Brandt Machinery Company, 50 Penn Ave., Pittsburgh, Pa.

Automatic, Fay 14$\frac{3}{8}$", 19" cent., m. d.
Bolt cutter, 1$\frac{1}{2}$" Landis, single head.
Boring mill, 8' Cincinnati, 2 heads.
Boring mill, 8$\frac{1}{2}$' Sellers, 2 heads.
Boring mill, 10' Pond, 2 heads.
Brake, 10'x$\frac{1}{4}$" D. & K., leaf type.
Brake, 10'x3/16" D. & K., leaf type.
Brake, 10'x$\frac{3}{8}$" D. & K., leaf type.
Bulldozers, Nos. 2, 24, 5, 26, 9.
Compressors, 8x8 Bury, belted m. d.
Coper, No. 5 H. & J. punch & coper, motor drive.
Corrugating rolls, 12' Poorman, Al.
Forging mchs., 1$\frac{1}{2}$", 3", 4", 5", 7" Ajax.
Hammer, 4 H Nazel.
Lathe, 18"x11' Lehmann, q. c. g.
Lathe, 21"x8' LeBlond, q.c.g., $800.
Lathe, 22"x12' Greaves-K., q. c. g.
Lathe, 25"x16' Sidney, heavy duty.

Lathe, 32"x20' Bridgeford, g.h.,m.d.
Milling mch. 2M P. & J. auto. s.p.d.
Milling mch. No. 2$\frac{1}{2}$ Rockford, pl.
Milling mch. No. 0$\frac{1}{2}$ Cincinnati, pl.
Nibbler, No. 2 Campbell, 12" thr. $\frac{3}{8}$".
Nut tapper, 10 spindle, 1$\frac{1}{2}$" Acme.
Press, No. 21 Bliss o. b. t.
Press, No. 76 Consolidated open bk.
Presses, toggle, No. 404 & 406 Bliss.
Press, wheel, 150 ton 48"
Roller leveller, 49"x10 ga. United.
Roll, bending, 11'x1$\frac{1}{2}$" Wickes.
Screw mche., No. 4 Foster, fric. hd.
Shears, angle, No. 3 H. & J. double.
Shear, bevel, $\frac{3}{4}$" lengths.
Shear, squaring, 8'x14 ga. Ohl.
Shear, squaring, 10'x12 ga. United.
Shear, squaring, 12'x10 ga. United.

May we have your inquiries?

FOR SALE BY

Randle Machinery Co., - 1733 Powers St., Cincinnati, Ohio

Air compressors, all sizes and types.
Arbor press, Nos. 2 and 4 Greenerd.
Beading machine, Quickwork univ.
Beading mche., Pexto No. 624, m.d.
Bending rolls, 12'x1" Niles, m. d.
Bending rolls, 16'x1$\frac{1}{2}$" Wickes.
Bending rolls, Pexto No. 418.
Bending rolls, Pexto No. 381.
Bolt cutter, 1$\frac{1}{2}$" Landis, cone drive.
Boring mills, 14' Betts.
Boring mill, 42" Bullard & Gisholt.
Brake, 8'x14 ga. Chicago hand pwr.
Brake, 6'x18 ga. Chicago hand pwr.
Brake, 8' & 10'x10 ga. Ohl press.
Brake, Pexto 39" hand power box.
Drills, all sizes and types.
Gas engine, 60 hp Reeves 3 cyl. vert.
Grinder, No. 14—20" Gardner.
Keyseaters, Davis & Catlin.
Lathe, 12'x4' bed Sebastian, m. d.
Lathe, 16"x8' Sebastian, m. d.
Lathe, 16"x6' Monarch l. c.

Milling machine, No. 2 LeBlond universal, motor drive.
Pipe bender, Pedrick & Smith.
Pipe mche., 1$\frac{1}{2}$" Landis, belt drive.
Press, No. 5 Bliss d. c.
Press, No. 91B Toledo d. c.
Press, No. 3 Amer. openback, m. d.
Press, Nos. 4M & 7M Amer., m. d.
Press, No 1 American horning, m.d.
Press, Excelsior arch, 84".
Saw, 6" Economy, motor drive.
Shapers, all sizes.
Shear, Nos. 662 & 848 Niagara, gap.
Shear, 10'x14 ga. Stoll, m. d.
Shear, No. 272 Robinson, belt drive.
Shear, No. 3 L. & A., m.d., 10'x3/16".
Shear, Southwark rotary, No. 8 ga.
Shear, No. 25U Buffalo, m. d.
Shear, Pexto No. 300 circular.
Shear, No 38 Marshall'n bevel, m.d.
Welders, 100 to 300 amps.
Wheel press, 100 to 300 tons.
Wheel lathe, 84" Niles, m. d.

Also many other bargains. Send us your inquiries.

FOR SALE BY

Brandes Machinery Co., • • 1900 Euclid Bldg. Cleveland, Ohio

Drill, Minster 3" m. d. 90% new.
Drill, 24" Cin.-Bick. s. p. t. a.
Grinder, No. 50 Heald, internal s.p.
Grinder, 6"x18" Fitchburg plain.
Lathe, 24"x12' B. & E. q. c. d. b. g.
Lathe, 27"x16' Prentice.
Mill, 54" Bullard Maxi, ser. 11,000.
Pipe threader, 12" Bignall & Keeler.
Roll, 72" Peck, Stow & Wilcox.
Shaper, 21" Smith & Mills.
Shear, 20A Quickwork 12 ga.
Welder, 35 k. v. a. Gibbs.

FOR SALE BY

Foster Machinery Company, 2613 E. 73rd St., Cleveland, Ohio

Blue print machine, "Wickes".
Drill, No. 2 Bausch multi-spindle.
Draw bench, 12' Waterbury-Farrell.
Hoists, elect., 3, 5 & 10 ton Euclid.
Lathe, 20"x8½' American geared hd.
Lathe, 16"x10' Whitcomb & Blaisdell.
Lathe, 19"x12' Le Blond heavy duty.
Punch, EF Cleveland, 72" throat.
Riveter, 3-A High Speed.
Riveters, air, 30 ton & 50 ton Hanna.
Rotary planer, 50" Cleveland.
Shaper, 24" Gould & Eberhardt.
Shear, 12'x14 ga. Loy & Nawrath.
Turret lathe, No. 3-A Warner & Swasey univ., chucking equipt.
Welder, National butt, cap. 1".

FOR SALE BY

Clinton Machinery Co., 126-128 S. Clinton Street, Chicago, Ill.

Drills, 1, 2, 3 & 4-sp. Leland & G. p.f.; 4-sp. Allen; 6-sp. Avey h.s., b.b.
Grinders, No. 8 Besly 18" disc; No. 2 B. & S. sur.; No. 3 Abrasive sur. m.d.
Lathes, 14"x6' Hendeys & Am., t. a.
Millers, No. 1½B spec. K. & T. univ., double overarm s. p. d. complete; No. 2 Rockford universal s. p. d.; No. 3 Cincinnati plain.
Presses, Nos. 1, 2, 3, 4, 5 & 6 o. b. i.
Shapers, 16" Rockford s. p. d.; 16" Gould & Eberhardt; 15" Potter & Johnston universal.
Saw, No. 8 Marvel metal band, m. d.
Screw, press, No. 2 Stecher.
Screw machine, No. 4 Warner & S. p. f. to turret and cut-off.
Tappers, No. 2X Garvin automatic.

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Midwest Equipment Co., • 628 W. Lake St., Chicago, Ill.

Drill, Avey No. 2, 4-sp., b. b., 15" overhang.
Drill, Avey No. 1, 1-sp., b.b., bench.
Drill, Allen 2-spindle, b. b.
Gear hobber, Barber-Coleman No. 3.
Gear hobber, Adams-Farwell No. 2.
Grinder, 6x32 Norton cylindrical.
Grinder, Badger No. 6 disc, b. b.
Planer, Niles 24x24x6'.
Shear, Excelsior No. 52 gap sq., 50".
Welder, 300 amp. Wilson arc, m. d.
Welder, 200 amp. dual arc, m. d.
Welders, 8-10 k. w. spot, new.

Milling machines, shapers, wood working machines, motors and air compressors. Send us your inquiries.

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The Jones Machine Tool Co., Front & Pike Sts., Cincinnati, Ohio

Bor. mill, No. 32 G. & L. hor., 3" bar.
Car wheel borer, 36" Niles.
Gear cutter, No. 13 Brown & Sharpe.
Gear hobber, No. 12 Barber Colman.
Grinder, surf., No. 1 Diamond m. d.
Lathe, 16"x10' Hendey q. c. tie bar.
Lathe, 79" dbl. head, driving wheel.
Lathe, turret, Nos. 2A & 3A W. & S.
Miller, No. 3 Cinti. high pwr., s. p.
Miller, No. 2 Cinti high power s. p.
Miller, No. 2-M Cin., s. p d. plain.
Planer, 30x30x8' Cincinnati 1 head.
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Bending roll, 7' Hilles & Jones, belt drive.
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Lathe, 18"x84" Chard, semi-quick change.
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Power feeds all directions, double overarm. size of table 11½x45½", vertical travel 120" longitudinal travel 9¾", horizontal travel 20"; single pulley drive, serial 25/350.....**Price $625.00**

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Double back geared, quick change, screw cutting, 1¾" hole in spindle, 3 step-cone, 4 jaw chuck, face and dog plates, steady rest, double friction countershaft, actual swing 22", 72" between centers.....**Price $625.00**

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Screw cutting, double back geared, 3 step cone pulley, quick change, with center leg, thread chasing dial, equipped with 4 jaw independent chuck, steady rests, dog and face plates, double friction countershaft, female spindle nose, serial 23604.....**Price $725.00**

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20"x10' Prentice Compound Rest, Quick Change Gear, All Geared Hd., Single Pulley Drive, Belt Driven Engine Lathe.

No. 2-A Milwaukee Plain Constant Speed Drive Milling Mche., belt dr.

No. 4-B Heavy Brown & Sharpe Plain Constant Speed Drive Milling Machine, taper nose spindle, rapid traverse, belt drive.

No. 5-B Heavy Brown & Sharpe Plain Constant Speed Drive Milling Machine, taper nose spindle, rapid traverse, belt drive.

3' Arm American Enclosed Head Plain Arm Radial Drill with tapping attachment, gear box belt drive, with plain box table.

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Attractively Priced

4' Arm Hammond High Speed Sensitive Radial Drill with tapping attachment, motor driven, complete with motor and with universal table.

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6' Mueller Plain Arm Radial Drill with tapping attachment, gear box single pulley belt drive, with box table.

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30"x30"x12' Gray Spur Geared Planer, two rail heads, motor driven, complete with D. C. variable speed motor.

36"x36"x12' Niles Spur Geared Planer, two rail heads, reversing motor drive—direct connected with D. C. variable speed motor and control.

18" Libby Type "A" Heavy Duty Turret Lathe, motor drive (3).

26" Libby Type "A" Heavy Duty Turret Lathe, motor drive (2).

No. 3-A Warner & Swasey Late Type Steel Covered Ways Hollow Hexagon Turret Lathe with complete chucking equipment, pump, arranged for motor drive, complete with A. C. motor.

60" Colburn Vertical Boring and Turning Mill with two swivel heads, chuck jaws, belt driven.

52" Bullard Vertical Boring and Turning Mill with two swivel heads, with chuck jaws, arranged for motor drive.

No. 32 Lucas Horizontal Precision Boring, Drilling and Milling Machine, 3¾" spindle, with bars, belt driven.

No. 12 Barber-Colman Motor Driven Hobbing Mch. complete with mtr.

No. 11 Brown & Sharpe Plain Cylindrical Grinder, (2).

All of these Machines that are belt driven can readily be converted to motor drive machines.

end us a list of your requirements or write for our complete list.

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1—16"x14' Lodge & Shipley.
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1—18"x 8' American.
2—18"x10' Lodge & Shipley.
1—20"x 8' Monarch Timken Bear'g.
2—20"x 8' Lodge & Shipley.
1—20"x 8' American.
2—20"x12' Lodge & Shipley.
1—20"—40"x11' Rahn Larmon.
1—22"x10' Lodge & Shipley.
1—24"x 8' Hendey.
2—24"x12' Lodge & Shipley.
1—24"x14' Lodge & Shipley.
2—24"x18' Lodge & Shipley.
1—30"x24' Lodge & Shipley.
1—36"x14' Lodge & Shipley.
1—34"x24' Lodge & Shipley

*RADIAL DRILLS

1—2' Western.
1—3' Mueller.
1—5' Carlton Motor on arm.
1—5' American.
2—6' Western Triple Geared.
1—6' American Full Universal.

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1—24" Bullard New Era.
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All Other Makes up to 10'.

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Belt and Reversing Motor Drive
All Sizes

*MILLING MACHINES

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2—No. 2-M Cincinnati.
1—No. 2-B Milwaukee, Mtr.-in-Base.
2—No. 2 Cincinnati High Power.
1—No. 3-B Milwaukee.
2—No. 3-B Heavy Brown & Sharpe.
1—No. 4-B Heavy Brown & Sharpe.
1—No. 4 Cincinnati, Rect. Overarm.
1—No. 5-B Heavy Brown & Sharpe.

*UNIVERSAL

1—No. 2-M Cincinnati.
1—No. 3 Cincinnati High Power.
1—No. 4 Cincinnati High Power.

*VERTICAL

1—No. 3 Cincinnati High Power Motor-in-Base.
1—No. 3 Cincinnati High Power.
1—No. 3-B Milwaukee.
1—No. 3 Brown & Sharpe.
4—No. 4 Cincinnati High Power.
1—No. 4 Cinti Intermittent Feeds.

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Single Pulley and Motor Drive

2—No. 12 Barber-Colman.
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2—No. 4 A Warner & Swasey.
1—36" Libby-International 7¾" hole.
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2—14" Fay Automatic.

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All Makes and Sizes

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4—Acme 1", 1$\frac{1}{4}$", 2$\frac{1}{2}$", 3".
4—Gisholt 21", 24", 28", 34".

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2—14" Fays.

LATHES
1—90" Putnam Wheel.
1—84x36 Putnam.
1—72x28 Putnam.
1—72x58 N-B-Pond.
1—60x28 N-B-Pond.
1—56x18 N-B-Pond.
1—50x36 Pittsburg.
1—48x24 N-B-Pond.
1—48" N-B-Pond Wheel.
1—42x39 Putnam.
1—42x28 N-B-Pond.
1—36x14 Bridgeford.
1—30x22' American.
1—30x12' American
2—24x12 Schumacher-Boye.
1—21x10 LeBlond.
1—18x10 Lodge-Shipley.
1—18x10 Hendey.
1—17x10 LeBlond.
1—16x8 Monarch.
1—16x6 American.
6—14x6' L. & S. Selective Head.
1—14x5 Monarch.

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1—30x30x8 N-B-Pond.
1—30x30x12 Cincinnati.
1—36x24x12 D. & H. Openside.
1—36x36x8 Cleveland Openside.
1—36x36x10 N-B-Pond.
1—36x36x14 N-B-Pond.
1—42x42x12 N-B-Pond.
1—42x42x22 Cincinnati.
1—60x60x18 Cincinnati.
1—96x48x12 D. & H. Openside.

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1—3' American Plain.
1—4' Cincinnati-Bickford Plain.
1—6' Fosdick Plain.
1—6' Cinti.-Bick. Plain, mtr. on arm
1—7' Dreses Plain.
1—8' American Triple Purp. Plain.
1—6' American Universal.
1—5' Dreses Universal.

GEAR CUTTERS
4—B-Coleman Nos. 3, 12.
4—B. & Sharpe Nos. 13, 3, 5.
2—Newark No. 2-B.
3—G. & E. Nos. 18-H, 12-H.
9—Gleasons, 6, 11, 15, 18, 24, 36, 72".

MILLERS
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1—Cincinnati Vert. Nos. 3, 4.
4—Cincinnati Universal No. 2, 3, 4.
5—Milwaukee Pl. No. 1, $\frac{1}{2}$ 2-B, 3-B.
2—Milwaukee Vert. No. 2$\frac{1}{2}$.
7—Kempsmith Plain Nos. 2 3.
2—Kempsmith Univ. Nos. 2, 3.
5—LeBlond Univ. Nos. 2, 2$\frac{1}{2}$, 3, 4.
2—Knight No. 2, No. 3.
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BORING MILLS
1—16 N.-B.-Pond Extra Heavy.
1—12' Niles Vertical.
1—10-16" Niles Extension.
1—100" N-B-Pond Vertical.
1—96" Betts Vertical.
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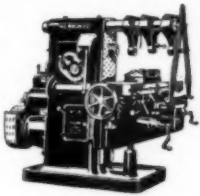

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Index of Advertisers

A

Acme Industrial Co. 38
American Electric Fusion Corp. ..... Front Cover
American Hollow Boring Co. 38
American Tool Works, Inc. 61
Ames Co., B. C. 40
Anderson Bros. Mfg. Co. 39
Armstrong Bros. Tool Co. 41
Armstrong-Blum Mfg. Co. 24
Atlas Press Co. 53
Automatic Machine & Engineering Co. 98
Avey Drilling Machine Company 4

B

Baumbach Mfg. Co., E. A. 50
Boker & Co., Inc., H. 85
Bennett Machinery Co. 98
Boston Gear Works Sales Co. 45
Box Crane & Hoist Corp. 12
Brandes Machinery Co. 84
Brandt Machinery Co. 83
Broadway Machinery Co., Inc. 99
Brotherhood & Son, Percy M. 83
Brown Machinery Co. 80
Brownell Machinery Co. 79
Browning & Co., Inc., Victor R. 51
Burke Machine Tool Co. 33

C

Canton Foundry & Mchc. Co. 51
Chicago Gear Works 44
Cincinnati Abrasive Wheel Co. 40
Cincinnati Electrical Tool Co. ..... Inside Back Cover
Cincinnati Mchy. & Supply Co. 94
Clements Manufacturing Co. 37
Cleveland Twist Drill Co. 53
Clinton Machinery Co. 84
Colonial Broach Co. 42
Conway Clutch Co. 6
Crofoot Gear Corp., C. E. 42
Cullman Wheel Co. 43

D

Davis Keyseater Co. 30
Davis Machinery Exchange 78
Defiance Machine Works 5
Detroit Stamping Co. 48
Donahue Steel Products Co. 95

E

Eastern Machinery Co. 93
Edgemont Machine Co. 60
Elco Tool & Screw Corporation 57
Easley Machinery Co., E. L. 78
Etico Tool Co., Inc. 28
Excelsior Tool & Machine Co. ..... Inside Front Cover

F

First United Finance Corp. 106
Foote-Burt Co. 2
Foote Gear Works, Inc. 45
Foster Machinery Co. 84

G

General Machinery Corp. 71
Glenzer Co., J. C. 28
Grant Mfg. & Machine Co. 35
Greenerd Arbor Presses 32

H

Hagen, H. J. .....
Hammond Machinery Builders, Inc.
Hardinge Brothers, Inc. 52
Hartford Special Machinery Co. 58
Hill, Clarke & Co., of Chicago 90-91
Hunt & Son, C. B. 10
Hyman & Sons, Joseph 99

I

Illinois Testing Laboratories, Inc. 49
Indianapolis Machinery & Supply Co. 86
Interstate Machinery Co. 82
Iroquois Machinery Co. 103

J

J. & H. Electric Co., Inc. 36
Jarecki Machine & Tool Co. 21
Jarvis, Inc., Benj. E. 34
Johnson & Sons Mchy. Co., Wm. C. 72
Jones Machine Tool Co. 84

Index of Advertisers—Continued

K

Kearney & Trecker Corp. 97
Keller Mechanical Engineering Corporation 11
Kinsey Co., E. A. 97
Klauber Machinery Co., E. L. 82
Knoedler Machinery Exchange 82

L

LeBlond Mche. Tool Co., R. K., ... 54-55
Leland-Gifford Co. 3
Lenney Mche. & Mfg. Co., Inc. 9
Lewthwaite Machine Co., T. H. 48

M

McDonald Machinery Company 81
McKinney Tool & Mfg. Co. 7
Mall Tool Co. 46
Marr-Galbreath Machinery Co. 73
Martin Tool & Die Works, J. E. 59
Massachusetts Gear & Tool Co. 44
Midwest Equipment Co. 84
Mid-West Machine Tool & Supply Co. 71
Miles Machinery Co. 87
Morey and Co. Inc. 82
Morris Machinery Co., Inc. 96

N

Nelson Machinery Co. 72
Nicholson & Co., W. H. 47
Norgren, Co. Carl A. 27
Norton-Broadway Mchy. Co. 76

O

O'Brien Machinery Co. 80
Osborne & Sexton Mchy. Co. 100

P

Partridge, Arthur S. 85
Pedrick Tool & Machine Co. 16
Peerless Machine Co. 35
Plunket Machine Co., J. E. 58
Porter Machine Co., J. E. 34
Precision Gauge & Tool Co. .....
Procunier Safety Chuck Co. 60

R

Randle Machinery Co. 83
Reeve-Fritts Company 71
Reynolds Machine Company 56
Riverside Machinery Depot 103
Rochester Tool & Gauge Corp. 41
Russell Machine Co. 96
Ruthman Machinery Co. 37

S

Saltzman, B. L. 80
Schellenbach-Hunt Tool Co. 70
Schwerdtle Stamp Co. 49
Scott-Bansbach Mchy. Co. 77
Segal Machinery Co. 72
Simmons Machine Tool Corp. 92
Smith & Mills Co. 31
Stackbin Corporation 18
Standard Electrical Tool Co. 23
Standard Shop Equip. Co., Inc. 50
Stevens Inc., John B. .....
Stoody Company 17
Strafer Machinery Co. 76
Strand & Co., N. A. 46
Strong, Carlisle & Hammond Co. 88-89
Sun Machinery Co. 100

Index of Advertisers—Continued

Sundstrand Machine Tool Co.... Back Cover
Superior Machine & Eng. Co. ... 19
Surplus Material & Mchy. Co.... 71

T

Taylor-Hall Welding Corporation 77
Taylor & Fenn Co. ... 15
Thompson Grinder Co. ... 31
Townsend Mfg. Co., H. P. ... 32

U

United Machinery & Supply Co. 71
U. S. Electrical Tool Co. ... 8
Used and Rebuilt Machinery..71 to 103

V

Vim Electric Tool Co. ... 39

W

Wachs-Gregg & Co. ... 81
Wade Tool Co. ... 30
Walls Sales Corporation ... 43
Walton Co. ... 47
Wardwell Manufacturing Co. ... 25
Wells Manufacturing Corporation 22
Wertman Machinery Co., M. A. 80
West Penn Machinery Co. ... 75
Western Tool & Mfg. Co. ... 59
White Machinery Co., A. D. ... 74
Whitney Metal Tool Co. ... 29
Wigglesworth Machinery Co. ... 79
Wilder Tool Co. ... 61
Wilson, K. R. ... 20
Winterer, Herman L. ... 74
Wittek Manufacturing Co. ... 108

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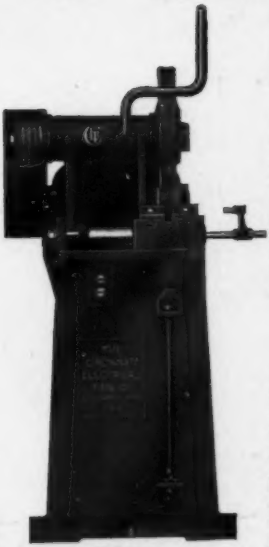

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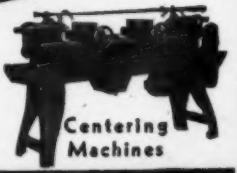

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